Professional options for theoretical and quantitative scientists

Daniela Klammer
Purpose

• Give you an overview of job profiles that use quantitative skills (math, modelling, programming)
  – Without any claim to comprehensiveness
• Create awareness of the opportunities
• Give you a starting point for exploring

Disclaimer:
I do not intend to advertise any company, but I will show you real job ads
Skills

**Technical skills**
- Programming languages
- Databases
- Machine learning
- Solving PDEs
- Model building
- ...

**Scientific experience**
- Only really needed for R&D positions
- Relevant scientific field
- Interface engineering/science is blurry
(Possible) Added value of PhD

- Testimony of your smartness
- Perseverance
- Being able to work independently
- Ambition
- Analytic thinking
- Willingness and capability to learn new technology etc. (fast)
- Ability to solve hard problems
Classical stereotypes

- No experience/interest in real world problems
- No/little practical knowledge
- Too theoretical
Positions in IT R&D

- IT companies such as Amazon, Microsoft, Google, Uber, Booking.com, Netflix etc.
- Healthcare, biotech and pharma industry
- Automotive industry (autonomous driving), robotics
- Applications of AI in industry, e.g. recruiting software/analysis, any type of organizational process
- Speech/audio recognition, image recognition, pattern recognition
- Blockchain, cryptography, fintechs
- ...
Positions in R&D

• Other companies: product/technology development
• Close to engineering
Careers in industry & business
Data science is growing fast
Job titles

“Data science is the marriage of statistics and computer science”

• Different people have different things in mind
  – Data scientist
  – Data engineer
  – Data analyst
  – Business analyst

• Similar jobs:
  – Market Research Analyst
  – Operations Research/ Business Analyst
What do data scientists do? Examples

• Lay data foundation in order to perform robust analytics
• Use online experiments, among other methods, to achieve growth
• Use machine learning pipelines and personalized data products to better understand their business and customers and to make better decisions
• Infrastructure, testing, machine learning for decision making, and data products
Data science projects

There are several parts to completing an independent data science project:

- Coming up with an idea
- Acquiring the data (right format, quality)
- Analyzing the data and/or building a model
- Reports, visualization
Archetypes of data scientists

• Hackers
  “I am not a DBA, but I’m good at SQL, I’m not a programmer, but good at programming, I’m not a statistician, but I am good at applying statistical techniques.”

• Scripters
  use R or Matlab, rather simple SQL queries

• Application users
  Excel, SAS, SPSS,…
  “All data is in a relational database. When I get it, it’s out of the database and into an Excel format that I can start pivoting. I ask the IT people to pull it.”
Archetypes, processes, and tools

https://www.slideshare.net/Big-Data-Summit/data-science-de-la-matematica-a-la-practica-65470232
Data Science Bootcamps

• S2DS - Science to Data Science (London)
• Data Science Retreat (Berlin)
• Insight Data Science (NYC, Boston, Silicon Valley)

There are remote programs, too
• Data Science Nanodegree, Udacity ...

Prices vary, some are free, some cost > 10k €
IST Austria grad school courses

- Statistical Machine Learning
- Deep Learning with Tensorflow
- Introduction to Programming with Python
- A (very) basic introduction to R
- Bioinformatics I & II
- Applications of Stochastic Processes
Kaggle

- Online platform where companies and institutions upload data sets and state their problems
- Users from all over the world compete to solve the problem
- Practical experience
Who are we?
Afiniti is the world’s leading applied artificial intelligence and advanced analytics provider. Afiniti Enterprise Behavioral Pairing™ uses artificial intelligence to identify subtle and valuable patterns of human interaction in order to pair individuals on the basis of behavior, leading to more successful interactions and measurable increases in enterprise profitability. Afiniti operates throughout the world and has measurably driven billions of dollars in incremental value for our clients.

Purpose
Afiniti uses data science and operations research to enhance human interactions in large enterprises by efficiently pairing customers or tasks with company representatives. Our primary focus is improving contact center interactions for sales, service, retention, collections, and customer satisfaction in fields ranging from telecommunications to healthcare to banking to hospitality. To ensure we’re delivering value, we measure performance using a real-time control group – routing a portion of calls using the client’s existing system and the majority of calls using our data-scientist-designed pairing and next best action recommendation strategies. Clients are billed on our incremental improvement, so model quality is central to our product.

Key Responsibilities
Develop modeling, simulation, and validation tools to support our AI production team
The particular challenges of our domain require applying a wide range of classical to cutting-edge techniques – often with extensive tailoring – to build models and statistically validate their predicted performance. This involves careful analysis of complex environments and the ramifications of a change to our real-time pairing and recommendation systems
The R&D team works intimately with our production data scientists, so the role can involve assisting with particularly tricky client models and developing new strategies to address complicated metrics or routing structures
You’ll also work with our engineering teams and developers to write our real-time call-tracking, pairing and task assignment systems in addition to our modeling and monitoring infrastructure

You will have
Experience with statistics, machine learning, linear programming, or mathematical optimization, both practical and theoretical
Excellent skills at distilling complex, ambiguous scenarios into tractable models
Familiarity with simulation and at least one programming language for data analysis such as R, Python, or Julia
Familiarity with SQL, relational databases, version control, and tools for reproducibility such as git, Jupyter and R Markdown, make, or authoring custom packages
Demonstrated ability to manage time independently and take projects to completion
Willingness to both teach others and learn new techniques
Ability to document and explain cutting-edge techniques to other team members
Comfort working in a collaborative environment with cross-team communication to bring projects into production
Familiarity with Bayesian statistics, hierarchical modeling, MCMC algorithms, latent factor models
Familiarity with reinforcement learning, dynamic programming, multi-armed bandits
Publications in machine learning, statistics, or optimization
Software engineering experience, particularly C++

Education & Qualifications
Graduate degree in Statistics, Mathematics, Econometrics, Operations Research, or other field with relevant research
Physicist and computational neuroscientist with experience in the application of machine learning, statistical inference and mathematical modelling to real-world, data-driven problems.
Dr. Eric Morfa Morales
Specialist for Physics and Data Science
Berlin und Umgebung, Deutschland | Automobil

Aktuell: HELLA
Früher: SAP, University of Vienna, Brain Schrödinger Institute
Ausbildung: University of Vienna

Berufserfahrung

Specialist for Physics and Data Science
HELI
August 2016 – Heute (1 Jahr 5 Monate) | Berlin und Umgebung, Deutschland

Support Consultant
SAP
März 2012 – Februar 2015 (3 Jahre) | Vienna
Component know-how in Variant Configuration (LO-VC), Classification (CA-CL) and Document Management (CA-OMS) — Solution of customer problems and technical analysis of program errors using debugging and tracing — Performance analysis and Optimization of models in Variant Configuration — Extension of correction reports in Variant Configuration — Knowledge transfer with Knowledge Base Articles, Wiki documents and SAP Community Network blog posts
▶ 1 Auszeit ungen oder Preis

Scientific Assistant
University of Vienna
Juni 2011 – Februar 2012 (6 Monate) | Vienna
Publication of scientific results in academic journals — Presentation of scientific results at international conferences — Organization of seminars — Assistance of diploma students

R Programming
Coursera
Start: 2014

Machine Learning
Coursera
Start: 2014

Data Science CS109
Harvard University Extension School
Start: 2014

Introduction to Data Science
Coursera
Start: 2014

Internetworking with TCP/IP
Hasso Plattner Institute
Start: 2014

Result-oriented Debugging and Tracing of SAP Applications
SAP
Start: 2013

Variant Configuration 2: Enhancements and Scenarios
SAP
Start: 2013

Variant Configuration 1: Modelling and Integration
SAP
Start: 2013

ABAP Workbench Fundamentals
SAP
Start: 2012

SAP NetWeaver Application Server - Fundamentals
SAP
Experience

Deep Learning Researcher
Hutoma AI
Jan 2017 – Present - 1 yr 5 mos
London, United Kingdom
Hutoma is creating a platform for chatbots to allow an easier integration for developers and non-technical people alike. As part of its research team I develop NLP and Deep Learning solutions to make training chatbots more accurate and production-ready.

Data Scientist
Beautiful Destinations
Jan 2016 – May 2017 - 1 yr 5 mos
London, United Kingdom
Beautiful Destinations is a content creation focused company working in the travel industry. As part of the Data Science team I focused on two main company goals: developing an automated image enhancement tool, building on deep learning technologies such as convolutional nets and general adversarial networks, to accelerate the process from shot to post on social media, Build... See more

Data Analytics Associate - Fraud Investigations & Dispute Services
EY
Sep 2014 – Jan 2016 - 1 yr 5 mos
London, United Kingdom
Working on various financial services related projects I helped clients explore and settle wrongdoings in their company and mitigate public attention ahead of time.

Zertifikate/Diplome
S2DS - Science 2 Data Science
pivigo academy
Start: August 2014

Kurse
Unabhängige Kurse
- Computing for Data Analysis (Coursera)
- Data Analysis (Coursera)
- Introduction to Finance (Coursera)
- Financial Engineering and Risk Management (Coursera)
- Principles Of Microeconomics (Coursera)
- An Introduction to Interactive Programming in Python (Coursera)
- Market with Frictions (Coursera)
- Machine Learning (Coursera)
- Economics of Money and Banking 1 and 2 (Coursera)
- Introduction to Financial Accounting (Coursera)
- The Power of Microeconomics (Coursera)
- The Power of Macroeconomics (Coursera)
- Foundations of Business Strategy (Coursera)
- Competitive Strategy (Coursera)
- 21st Century American Foreign Policy (Coursera)
- Introduction à la programmation orientée objet en Java (Coursera)
- Data Analysis and Statistical Inference (Coursera)
- Financial Markets (Coursera)
- Algorithms: Design and Analysis I (Coursera)
- Mathematical Biostatistics Bootcamp 2 (Coursera)
Data science in HE

• Research analytics and data analysis to support strategy discussions
• Scientometrics, altmetrics, ...
Data Engineer - partnership with UCL and Elsevier’s Big Data Analytics team!

Elsevier
London, United Kingdom

Vor 14 Tagen veröffentlicht 295 Ansichten
3 Alumni arbeiten hier

Bewerben
Speichern

Jobbeschreibung
Elsevier is a world-leading provider of information solutions that enhance the performance of science, health, and technology professionals, empowering them to make better decisions, deliver better care, and sometimes make groundbreaking discoveries, that advance the boundaries of knowledge and human progress.

We’re seeking an experienced engineer who has strong core software engineering skills with a deep interest in Data Science who is looking to join a team of experienced Data Scientists and Developers who are creating unique
From interviews with companies

- There is a gap in Data Scientist demand ↔ supply
- This gap is characterized by experience and is located in 5-15 years of experience
- For junior Data Scientists straight out of University there is no urgent gap, there are more applicants than positions in this range, quality is good, many graduates with good skills seem available
- Many do not see a real advantage of a PhD compared to a Master per se - often even seen as "too academic", even in fields like Mathematics and Statistics. Ratio of applications with PhD to MSc or BSc requirement is around 1:20
- Juniors are normally hired directly through companies since it seems quite easy. Seniors with experience are often hired by headhunters
From interviews with companies

• Consulting Companies seem to like hiring PhDs
• Scarcest skills are soft-skills, communication skills and practical data science skills
• There is a high turnover rate as many companies don't understand the same with "data scientist" and tasks are often simplistic
• R&D and discovery make the smallest category of Data Scientists → even in this small space only 5% goes into science and algorithm and 95% of it is data manipulation
• What the industry needs are people who get the rubber on the street, meaning do the data handling and manipulation (data stewards); academics are not seen as such
If you are interested in data science

• Figure out which industry sectors are interesting to you
• Do you care about what data you analyze or are you interested in the methods that you will use?
• This is about skills, not necessary about academic degree/experience as a scientist
• You need to provide evidence of skills application
Software development

• Produce a product
• Project based type of work
• Less data
• Not just scripting: programming
  – “You work on a project and after 6 months you and others (!) still understand your code” (good programming)
  – Object oriented language(s) used:
    Java, C++, Ruby, Python, Perl, PHP
Software development

• Not just a code monkey
• You may deal with people who don’t have your technical expertise (e.g. clients)
  – Change of perspective: In science you often program to solve a problem for yourself, not for someone else
  – Interpersonal skills needed
• Lots of interactions with other people: project manager, team members, designers, QA, testers, clients,...
Jobs and job titles

There are a lot of roles in SD besides straight up software developer who do, move to and from, or have familiarity with programming.

- Project management
- Technical support
- Software architect
- Testers (QA, manual testing, automatic testing)
- Technical writing
- Designers
- User interface / user experience
Isaac Mabillard • 1st
Software Engineer at Google
Zürich, Canton of Zürich, Switzerland

Experience

Software Engineer
Google
Sep 2018 – Present • 1mo
Zürich

Junior Business Analyst
Systemorph
Jul 2017 – Aug 2018 • 1yr 2mos
Zürich Area, Switzerland

Postdoctoral Researcher
The University of Chicago
Jan 2017 – Jun 2017 • 6mos.
Greater Chicago Area

Postdoctoral Fellow
Brown University
Sep 2016 – Dec 2016 • 4mos.
Providence, Rhode Island Area

Education

IST Austria
Doctor of Philosophy (Ph.D.), Mathematics and Computer Science
2013 – 2016

EPFL (École polytechnique fédérale de Lausanne)
Master of Science (M.Sc.), Mathematics, 5.85/6
2010 – 2012
STEFAN HUBER

WHERE?
RESEARCH AND DEVELOPMENT, E&R,
AUSTRIA

AREA OF WORK
ALGORITHMS
MATHEMATICS
INDUSTRIAL AUTOMATION

AT IST AUSTRIA
POSTDOC
2015
EDELSBRUNNER GROUP
Junior Software Developer (f/m)

FULL TIME

Providing tailor made applications for our institute is the main responsibility of our software development team. Together with your colleagues, you will develop and hold responsibility for applications mainly running on a Ruby on Rails environment. In the process of developing new applications, it is crucial to understand the needs of our users and to provide them with the best possible solution.

Responsibilities
- Developing, modifying and testing of applications, based on open source frameworks
- Developing technical specifications from functional specifications
- Maintaining of the Linux based development infrastructure together with our System Administrators
- Participating in the development of software documentation and training

Requirements
- Technical education
- Learned about OO methodologies for designing software solutions in at least one of the following languages: Ruby, Python, Perl or Java
- First steps with native JavaScript and JS frameworks such as AngularJS or ReactJS
- Knowledge on web standards (HTTP, REST, HTML5)
- High degree of service orientation and motivated team player
- Open minded and reliable character, focused and self-dependent personality
- Eagerness to learn about upcoming technologies
- Good communication skills and good command of the English language (corporate language)

IST Austria
- Offers challenging positions in a dynamic and growing organization
- Supports learning and development
- Provides flexible working times and numerous fringe benefits
- Promotes an international and open culture
- Supports an appreciative and respectful work environment
- Values diversity and is committed to equality

Apply now
To apply for this position send your application in one combined pdf (including CV, certificates, and references) by e-mail to:
devs.recruiting@ist.ac.at
Software Engineer (m/f) for Health-Cloud Platform

About us
The Hasso Plattner Institute holds a unique position in the landscape of German universities in the area of IT systems engineering. It offers research and teaching programs with the highest standards and has significantly contributed to the advances of computer science on an international level with partners in academia and industry.

Further, the HPI has committed itself to use its capabilities to address major societal challenges and to promote the implementation of innovative solutions in industry and society. In this context, the recently launched HealthCloud project aims to address the current deficiencies in the healthcare sector through a patient-centric, cloud-based platform for health data, ultimately enabling highly-individualized health provision at lower cost.

Your role
- Take responsibility in the growing development team of the HealthCloud platform
- Explore, evaluate, and implement the most recent technologies in scalable data management
- Write well designed, testable, efficient code by using best software development practices
- Participate in our team's agile processes and influence these through regular sprint retrospectives
- Proudly present the work of the development team towards project stakeholders

Candidate profile
- University degree in computer science, mathematics, or bioinformatics
- Expert knowledge of object-oriented programming concepts and experience with Java/Scala and JavaScript
- Hands-on experience with the play framework or similar frameworks (Rails, Django, Spring)
- Experience with big data concepts and technologies (e.g., Hadoop, Spark, SAP HANA) is a plus
- Ability to work and thrive in a fast-paced environment, and to learn rapidly
- Fluency in spoken and written English

What we offer
- The opportunity to have an impact on improving people’s life with innovative technology
- Working with cutting-edge cloud and data management technologies
- Opportunities to keep learning: we encourage the participation of trainings and conferences
- An inspiring atmosphere on the HPI campus and excellent connection to public transportation
- Regular social events with a fun team
- A competitive salary and a workstation of choice
Industry Partners

There are currently seven industry partners involved in the Cyber Valley initiative: Amazon, BMW AG, Daimler AG, IAV GmbH, Porsche AG, Robert Bosch GmbH, and ZF Friedrichshafen AG.
Big differences in salaries

Job titles

• Financial analyst
• Risk analyst
• Quantitative analyst
• Financial engineer
• .....
Securities, Commodity Desk Strats, Associate
Goldman Sachs

MORE ABOUT THIS JOB

SECURITIES

Our core value is building strong relationships with our institutional clients, which include corporations, financial service providers, and fund managers. We help them buy and sell financial products on exchanges around the world, raise funding, and manage risk. This is a dynamic, entrepreneurial team with a passion for the markets, with individuals who thrive in fast-paced, changing environments and are energized by a bustling trading floor.

RESPONSIBILITIES AND QUALIFICATIONS

YOUR IMPACT

We’re looking for a professional to join our commodities desk strat team and help us develop new generation trading analytics utilizing modern mathematical techniques and system architecture solutions.

OUR IMPACT

Commodities desk strats use their quantitative and scientific training to solve complex business problems. We create cutting-edge derivative instruments and pricing models, provide insight into market behavior via statistical modeling, measure risk of our trading positions, and identify market opportunities. We also build scalable software infrastructure to keep track of our trading activities and market data flow around the world in real time and facilitate quick decision making.

HOW YOU WILL FULFILL YOUR POTENTIAL

You will work in a small team of quants and developers on developing new and maintaining existing commodities analytics. Some projects may involve data science because large datasets are available providing useful insights on most commodities markets. You will work on developing advanced tools for our liquid options market making businesses. You will work on cutting edge real time market making analytics. You will work on sophisticated mathematical models and trading strategies.

SKILLS & EXPERIENCE WE’RE LOOKING FOR

BASIC QUALIFICATIONS

MS or PhD degree in a quantitative field: Mathematics, Computer Science, Physics or Engineering.

Strong programming skills.

2 or more years of experience in finance or a cutting edge technology company.

Strong expertise in at least one of two areas:

- Stochastic calculus and derivatives pricing
- Software development in finance-related field, in particular experience with object-oriented languages
Quantitative Researcher – Machine Learning

Job ID: 3178191
Regular/Temporary: Regular
Location: London, United Kingdom

Overview:
You will be joining the Data Science Research team which is responsible for the research and design of quantitative investment strategies, which include but are not limited to, alpha generation through stock selection, portfolio construction, and quantitative analysis. In particular, the team utilizes unstructured (text) datasets, Natural Language Processing (NLP) and machine learning techniques to generate stock selection and macroeconomic signals. These signals are used in the design of both long-only and long-short products.

The team are looking for self-starter and innovative Quantitative Researchers with strong backgrounds in computer science and statistics. This is a critical position with the potential to make immediate, significant impacts across the business.

Key Responsibilities:
- Processing large and unstructured datasets, testing academic hypotheses based upon behavioral finance theory, and employing state-of-the-art machine learning and NLP techniques to design alpha signals (including Equity long-short market neutral strategies and tactical asset allocation models)
- Working collaboratively with a team of data scientists to provide data-driven solutions and production-level investment products
- Articulating ideas to clients via written and oral communications

Skills & Qualifications:
- A strong background in statistical learning techniques applied to financial markets with the ability to conduct research independently in a scientific and empirically-driven manner
- Expertise in at least one of the following areas applied to unstructured data: classical machine learning, deep learning, semantics web, and/or information retrieval/recommendation systems
- Experience of developing and back-testing predictive models (with strong knowledge of Python)
- Ability to generate ideas for research projects, mentoring junior researchers, and communicating ideas succinctly and in a non-technical way
- Familiarity with traditional structured datasets including Factset, Datamonitor, Bloomberg
- Experience with risk models and portfolio optimization tools (e.g. Barra and Axioma) is highly desirable

Corporate & Investment Bank

The Corporate & Investment Bank (CIB) combines Deutsche Bank’s Corporate Finance, Global Markets and Global Transaction Banking businesses. This new business division was created in 2017 with the aim to ensure greater alignment of product and sales efforts, enabling the bank to deliver a better service to clients and a more focused resource allocation.

Corporate Finance is comprised of regional and industry-focused coverage teams that ensure the delivery of the entire range of financial products and services to the bank’s corporate clients. The business includes the Mergers & Acquisitions (M&A) team as well as the debt and equity capital markets (DCM and ECM) teams.

Global Markets is dedicated to building long-term, sustainable relationships with the bank’s key corporate and institutional clients. It combines a market-leading institutional sales force, world-class research with trading and structuring expertise to provide clients with access to liquidity and customised solutions across a wide range of markets, products and regions.

Global Transaction Banking (GTB) is a leading global provider of cash management, trade finance and securities services, delivering the full range of commercial banking products and services for both corporates and institutions worldwide.

Job title: Quantitative Researcher – Machine Learning
Corporate title: Associate/Vice President
Division: Global Markets
Location: London
Quantitative Analyst

IdeaLab Research develops algorithmic trading strategies for the equity, futures and forex markets. We apply scientific methods from quantitative disciplines including statistics, signal processing and machine learning to predict price returns and manage risk.

Are you a talented graduate in a quantitative field with passion for maths and finance? Apply now and join an innovative and international company taking part in the FinTech revolution!

Your tasks
As a member of our team you will have access to data, technology and know-how and will use your creativity to:
- Develop algorithmic computer-driven trading strategies
- Apply novel methods to analyze data
- Design, implement and train machine learning methods
- Explore data sources for discovering statistical properties
- Pursue new research topics

Your profile
- Initiative, creativity and willingness to learn
- University degree in a quantitative field
- Programming skills
- Interest in learning about worldwide financial markets
- Passion for maths and statistics
- Strong problem solving skills

Working experience and knowledge of finance are not required. A PhD degree in a quantitative field such as Mathematics, Physics, Computer Science or Engineering is a plus (the interview process can be started if PhD is pending within 3-4 months). Hands-on experience with artificial intelligence is an advantage.

IdeaLab Research encourages independence and initiative and offers the possibility to apply your own skills and grow professionally. We offer an open and informal working environment as well as excellent coffee.
Junior Quant Trader/ Researcher

Anson McCade
London, United Kingdom

My client is a quantitative hedge fund, at the forefront of the market, whose focus is within the systematic trading space. They trade across all major asset classes and aims to capture market inefficiencies by building and implementing fully automated trading strategies. The strategies are implemented over various time horizons from milliseconds to longer time frames (high to medium frequency). My client is well situated globally with offices in London, New York, Paris and Singapore, giving excellent opportunities over numerous locations. The founding partners of my client have a long and successful track record of running quantitative strategies and spun out as a fund recently. They are looking to expand their current team by hiring Junior Researchers with strong programming skills and who can fit in with their collaborative environment.

The Role

- You will be working within the firm’s automated trading frame work by researching and implementing trading strategies.
- You will be identifying new trading opportunities by using sophisticated statistical methods and analysing large data sets.
- Ensure all data and related processes are prepared for the trading day ahead and check over the strategies that have been implemented as well as tracking their behaviour.
- Within this role you will build up a strong understanding of the various exchanges, asset classes and market structures that the company works with.

Skills/Requirements

- Have a quantitative background via a PhD or Masters Degree in Financial Engineering, Mathematics, Physics, Computer Science, Statistics, Operations Research and Econometrics.
- Must know at least one major programming language such as Python, C++ or Java.
- Be able to communicate comfortably with work colleagues across a number of locations.
- Be able to work under a pressered environment.
- Have knowledge of market microstructures.
- Have intern up to 3 years experience within a systematic trading environment
- Experience with creating strategies that run within the equities and futures markets.
Unsere Vision ist, unsere Marktposition als eine der führenden Retail-Multikanal-Banken auszubauen:

- durch die Erweiterung unseres österreichweiten Filialnetzes auf rund 500 Filialen mit modernsten Online- & Selbstbedienungsangeboten sowie
- durch die Entwicklung innovativer Produktbücher als einfach verständliche Finanzlösungen

Wir beraten unsere Kunden auf Augenhöhe und begeistern sie für unsere Produkte. Unsere Erfolgsgeschichte schreiben wir weiter – sind Sie mit im Team?

UNSERE vorrangige Aufgaben:

- Validierung und Monitoring von Modellen und Methoden zur Messung des Kreditrisikos insb. von Ratingmodellen und Parameterschätzverfahren
- Entwicklung von weiterführenden Maßnahmen auf Basis der Analyseergebnisse sowie Kommunikation und Abstimmung mit bankinternen Fachbereichen
- Weiterentwicklung validierungs- und spezifischer IT-Anwendungen und Erstellung fachgerechter Dokumentation für interne und externe Adressaten
- Ad-hoc-Analysen zur Unterstützung der Steuerung des Kreditrisikos
- Umsetzung von regulatorischen Vorgaben

IHRER PROFIL:

- Quantitative Hochschulausbildung (Mathematik, Statistik, Physik oder andere analytisch/methodisch ausgerichtete Fachgebiete)
- Erfahrung im Umgang mit der statistischen Software SAS oder R
- Fundierte Kenntnisse in MS Office sowie Datenbank-Know-how (SQL)
- Betriebswirtschaftliche Kenntnisse sowie Know-how betreffend bankspezifischer Regulierungen (Basel II / III)
- Bankerfahrung insb. Erfahrung im Bereich Kreditrisikomanagement von Vorteil

WIR BIETEN:

- Eine spannende Tätigkeit und die Chance, in einer dynamischen Zeit die Zukunft des Bankgeschäfts als ExpertIn oder Führungskraft aktiv mitzumachen
- Ein Umfeld, in dem Frauen und Männer mit Einstellung und Leistungsbereitschaft viel erreichen können, und gleichzeitig eine gute Vereinbarkeit ihrer privaten und beruflichen Verpflichtungen schaffen
- Attraktive Karriere- und Weiterbildungsmöglichkeiten sowie zahlreiche Sozialleistungen und Benefits

JUNIOR CREDIT RISK ANALYST
MODEL VALIDATION (w/m)
Comments

• Less advanced programming skills required: “you can do useful things fast in Excel”
  – “Accept Windows, accept Excel”
• Often people with a background in financial mathematics
  – need to learn the financial math \( \rightarrow \) doable
  – You may encounter familiar equations / concepts such as the diffusion equation and path integrals,…
  – Take some courses (online, at the local universities)
Comments

• Brexit high factor of uncertainty
  – Some jobs moved from London to Frankfurt
• Language: In the German speaking countries, English not always the corporate language
Career example: Saša Fratina

• PhD in experimental High Energy Physics
• Risk analyst at Erste Group
Experience

Investment Advisor
Allianz Global Investors
Jan 2020 – Present · 6 mos
Munich Area, Germany

Postdoctoral Researcher
Institute of Science and Technology Austria
Oct 2018 – Dec 2019 · 1 yr 3 mos
Austria
Research in pure mathematics, financed via an ISTplus fellowship.

Intern
Allianz
Jun 2019 – Aug 2019 · 3 mos
Munich Area, Germany
Temporary member of the Actuary department at Allianz Private Krankenversicherungs-AG. Performed as part of the ISTplus fellowship program.

Ludwig-Maximilians Universität München
6 yrs

Teaching Assistant
Oct 2015 – Sep 2018 · 1 yrs
Munich Area, Germany

Academic Tutor
Oct 2013 – Sep 2015 · 1 yrs
Munich Area, Germany
Data Scientist
SWIFT
Apr 2015 – Present • 3 yrs 7 mos
Brüssel und Umgebung, Belgium
Providing technical expertise to the financial crime and compliance marketing department.
Researching insights from operational data using statistical analysis, facilitation of product development, prototyping solutions.
• Data analysis in financial crime prevention and compliance area. Natural Language Processing, Python, Finite State Automata.
• OLAP. Business intelligence of payment flow data in correspondent banking. SQL, MicroStrategy.
• Acceptance testing business aspects in automated environment using Python, git, JIRA, Jenkins.
• Machine Learning on large datasets, regression analysis, Bayesian Inversion...

Researcher at European Fusion Experiment JET (EURATOM/EFDA)
JET
Jan 2009 – Aug 2013 • 4 yrs 8 mos
Culham, Oxford
Secondment while employed at Max-Planck-Institut für Plasmaphysik, Garching.
• Researching the vision of harnessing the power generation process of the sun on earth as part of the international JET collaboration, presentation of results on conferences, publication in scientific journals, supervision of students and technical staff, chairing of meeting for assurance of...

PhD Research Project
Max Planck Institute for Plasma Physics
Aug 2005 – Dec 2008 • 3 yrs 5 mos
Garching, Germany
• Development of novel statistical analysis for plasma spectroscopy, conducting experimental, theoretical and computational aspects of research project, compilation of input data sets, supervision of students and technicians, presentation of results at international conferences. Written thesis evaluated with 'summa cum laude'

Diploma Research Project
DESY
2003 – 2005 • 2 yrs
Hamburg
Diploma Research Project, Deutsches Elektronen Synchrotron (DESY), Hamburg.
• Scientific research in high energy particle physics as part of the international H1 collaboration.
• Writing data analysis software in C++ using ROOT framework, assisted commissioning...

Research professional in financial service domain with comprehensive background in statistical data analysis and numerical methods, career in international research collaborations, PhD in top-ranking institution.
WU Quantitative Finance Company Talks

https://www.wu.ac.at/studium/master/quantitative-finance/company-talks/
Job titles

• Computational engineer
• Simulation engineer
• Materials engineer
• Modeling & simulation engineer
Computational engineering

• You check products or production processes, or simulate them. Using simulation software you try to mimic reality as much as possible.
• According to specifications you reduce material costs, maximal temperature, or lost effects.
• You take into account economic, ecological, as well as technical considerations.
• Precise analysis is a must; mistakes can result in huge financial or material damage.
• Quality assurance will be part of your job → careful documentation is required
Skills needed

• Computational experience, numerical simulations, solving PDEs, finite element methods or something similar, ...

• Knowledge of materials, thermodynamics, fluid dynamics, ...
Competition

• Mechanical engineers
• Electrical engineers
Bianca M. Mladek
Development Engineer
Austria area | Forschung

Aktuell: IVM Technical Consultants
Früher: Max F. Perutz Laboratories, University of Cambridge, AMOLF
Ausbildung: Technische Universität Wien

Development Engineer
IVM Technical Consultants
Juni 2013 – Heute (3 Jahre 8 Monate) | Vienna, Austria

Senior Postdoctoral Fellow
Max F. Perutz Laboratories
März 2011 – Mai 2013 (2 Jahre 3 Monate)

Post Doc
University of Cambridge
Oktober 2008 – Februar 2011 (2 Jahre 5 Monate)
Developing computer simulations in the group of Prof. Daan Frenkel

Post Doc
AMOLF
2009 – 2008 (weniger als ein Jahr)

University Assistant
Universität Wien
2007 – 2008 (1 Jahr)
Dr. Daniela Broemmel

Professional experience

<table>
<thead>
<tr>
<th>Position</th>
<th>Company</th>
<th>Duration</th>
</tr>
</thead>
<tbody>
<tr>
<td>Berechnungsingenieurin</td>
<td>Siempelkamp Maschinen- und Anlagenbau GmbH &amp; Co. KG</td>
<td>06/2014 - present</td>
</tr>
<tr>
<td>CAE Senior Engineer</td>
<td>TRW Automotive</td>
<td>07/2011 - 06/2014</td>
</tr>
<tr>
<td>Angewandte Physikerin</td>
<td>Josef Becker Forschungszentrum - Schottel</td>
<td>10/2010 - 05/2011</td>
</tr>
<tr>
<td>Development Engineer</td>
<td>Delphi Diesel Systems</td>
<td>06/2008 - 08/2010</td>
</tr>
</tbody>
</table>

Computational engineer

PhD in theoretical particle physics in 2007
CFD Analysis Engineer m/w

Einsatzort: Europa; Österreich (Headquarters); Graz
Abteilung: Simulation / Methodikentwicklung

Ihr Aufgabenbereich:
- Durchführung numerischer Simulationen im Bereich Thermodynamik, thermische Analyse, Klimaregelung, Kühlung und Elektrifizierung unter Verwendung von 1D/3D CFD AVL Software für automotive Anwendungen
- Mitarbeit an Forschungs- und Kundenprojekten innerhalb internationaler Teams
- Prüfung und Validierung kommerzieller AVL Software
- Bearbeitung von eingehenden Supportanfragen von Kunden (Kontakt und Abklärung des Sachverhalts)
- Unterstützung des AVL AST Software Service Teams (Support, Dokumentation, Schulung, Projekte)

Ihr Profil:
- Studienabschluss Maschinenbau, Fahrzeugtechnik, Physik oder vergleichbar
- Erfahrung mit Simulationsaufgaben oder in -projekten
- Erfahrung in der Fahrzeugbranche von Vorteil
- Erfahrung mit CAD Systemen (vorzugsweise z.B. ProE, Catia)
- Grundlegende Programmierungskenntnisse erforderlich (z.B. Python, Fortran, C)
- Präzise, zuverlässige, proaktive Arbeitsweise
- Lösungsorientierung, gut organisiertes und selbstständiges Arbeiten
- Teamfähigkeit und Kommunikationsfähigkeit
- Englischkenntnisse in Wort und Schrift
- Reisebereitschaft für kurze Auslandsreisen
The New Programs Engineering team is looking for exceptional Aerodynamicists who are motivated to change the way people think about their vehicles. Unrivalled range, ludicrous performance, top-of-the-line comfort and long-term reliability depend on delivering exterior designs that are as aesthetically appealing as they are aerodynamically efficient. Day-to-day activities include initial concept design, creating digital geometry, running simulations, bench and wind tunnel tests, and partnership with design and cross-functional engineering teams. In many ways, the New Programs Engineering team operates much like a start-up, functioning as a small team able to move incredibly quickly on a wide variety of design challenges. If you can think of a way of making the vehicles better, or have an idea to improve the development process, you are empowered to champion and develop that idea and see it implemented.

Responsibilities

- Provide guidance and support to Designers to optimize aerodynamic performance
- Generate, develop, and validate novel airflow management features and systems
- Work with engineering, suppliers, and program management to execute efficient aerodynamic designs
- Identify and develop creative solutions to resolve engineering/styling/aerodynamic conflicts
- Innovate, develop and improve processes
- Prepare Computational Fluid Dynamics (CFD) simulations to model how geometry will perform
- Interpret results, propose recommendations for improvement and how changes will make an impact
- Design parts, prepare for, and conduct, model scale and full scale wind tunnel tests, and provide feedback
- Document and present findings to cross-functional teams and management
- Support vehicle milestones including prototype, pre-production, and production build events
- Deliver world-class craftsmanship, fit/finish and support for successful production launch

Requirements

- MS in Aerodynamics, Aerospace Engineering or related field
- Expert understanding of fluid dynamics
- Excellent knowledge of CFD
- Familiarity with geometry creation, simplification and data management within CAD software, preferably CATIA
- Experience with wind tunnel testing, either at reduced or full scale
- Track testing experience, including instrumentation, data acquisition and processing

Preferred Skills

- Knowledge of surface mesh preparation using ANSA, Hypermesh, or Star CCM+
- Passion for sustainable energy or related technologies, automotive or electric vehicle development

Seniority Level

Entry level

Industry
Siltronic is a global leader in the market for hyperpure silicon wafers and a partner to many top-tier chip manufacturers. Wacker Chemie AG's semiconductor division operates production facilities in Europe, Asia and the US. Siltronic develops and manufactures wafers with diameters of up to 300 mm. Silicon wafers form the basis of the modern micro and nanoelectronics. They are used, for instance, in computers, smartphones, flat-panel displays, navigation systems, automotive engine control systems and many other applications.

For our site in Burghausen, the Simulation department within the Innovation Management division is currently looking for a

PHYSICIST (F/M) / NATURAL SCIENTIST (F/M) / ENGINEER (F/M) AS A PROCESS DEVELOPER (F/M) FOR SIMULATION

Tasks
- Planning, execution and evaluation of complex simulation calculations of CZ and FZ processes
- Planning and evaluation of experiments with CZ and FZ crystal growth
- Management of innovation projects
- Consulting internal customers in the fields of technology and process development as well as R&D
- Responsibility for the coordination and monitoring of the individual relationships with external partners, including formulation of professional targets
- Tracking and evaluation of relevant patents
- Representation of the company at conferences and in customer presentations by giving presentations
- Tracking and evaluation of relevant technical literature
- Contact management for academic institutions

Requirements
- Completed university studies in the field of physics, natural sciences or engineering
- Ideally at least three years of relevant professional and business experience would be an advantage
- Special skills in computer simulation, preferably focusing on CFD and crystal growth processes
- Experience in project management would be an advantage
- Profound knowledge of solid-state physics and continuum mechanics
Lead Engineer - Fluid Systems (f/m)

Business: GE Power
Job Number: 3165990
City: Jenbach

Role Summary:
We are looking for a Lead Engineer – Fluid Systems (f/m), Job #3165990

This high-impact engineering position will lead projects and activities required to develop best in class reciprocating gas engine generator sets over the entire product life cycle. You will work in a global engineering team on the development of fluid systems for reciprocating gas engines.

Essential Responsibilities:
- Develop air handling, exhaust, oil and cooling systems from concept design to product introduction
- Working closely with other engineering functions considering the interactions and requirements from simulation and testing,
- Own specification and design in close cooperation with internal design team and external suppliers,
- Define development and validation plans for new product introduction, and lead investigation and resolution of performance and structural issues,
- Participate in design reviews for new product developments and root cause analyses to present results and project progress.

Qualifications/Requirements:
- Bachelor’s/masters degree (or equivalent) in Mechanical Engineering or similar specialization,
- Engineering experience in product development preferable in the area of industrial engines, heat gas path or fluid systems
- A broad working knowledge of modern design/simulation and data analysis techniques
- Proven decision-making and collaboration skills,
- Willingness to travel to field sites, suppliers or other R&D offices,
- Comfortable working in an international environment and convincing oral and written communication skills in English
- A valid work permit for Austria is a prerequisite for this position (Non-EU citizens: please attach the work permit to the application)
Types of Consulting

- Management consulting (strategy, organization, leadership, marketing, production, logistics)
- IT consulting
- Technical consulting for specific industry sectors
- HR consulting (recruiting, talent management, staff development)
- Audits and tax consulting
Consulting

- Many companies notorious for hiring the best/smarest people
  - Hiring process can be very competitive
  - Case questions
- Often don’t care so much about discipline and experience
- Soft skills important ➔ interpersonal skills
  - You work with clients
- Project based type of work
- Lots of travelling (several days per week)

➔ PhD is a testimonial of your smartness
Przemysław Daca
Developer at Senacor Technologies
Austria area | Computer-Software
Aktuell: Senacor Technologies
Früher: IST Austria, CERN, Tieto
Ausbildung: Danmarks Tekniske Universitet

Sebastian Novak - 1.
Consultant at EFS Business Consultancy Co., Ltd.
Wien, Wien, Österreich

Developer
Senacor Technologies
February 2016 – Present (1 Jahr) | Wien

PhD Student
IST Austria
June 2012 – January 2016 (3 Jahre 0 Monate)
PhD student in software verification and testing, supervised by prof. Thomas A. Henzinger.

Student Intern
CERN
February 2009 – January 2010 (1 Jahr) | Geneva Area, Switzerland
Developing a web application for managing servers in Oracle Application Express using Perl and PL/SQL.

Student Intern
Tieto
July 2007 – September 2007 (3 Monate) | Szczecin, West Pomeranian District, Poland
Programming a toolset to the CVS in Python/Tcl.
More information

• Many consulting companies organize recruiting events
• LinkedIn group: From PhD to Consulting
What can you do learn more about careers?

You need to develop a **feeling** for careers that sound interesting!
Emotions are an integral part of decision making.

- Do research on jobs that sound interesting to you
- Do an internship at companies
- Use ERASMUS+ for job shadowing
- Talk to people who work in industry
- Get in touch with alumni who work in industry
- Go to career events in Vienna (e.g. by YLSA)

Developing a feeling for careers takes time – it is a process!
What else can you do?

You need to develop a **feeling** for careers that sound interesting!
Emotions are an integral part of decision making.

- Use LinkedIn
  - Complete your profile
  - Complete skills section
- Screen job ads to better understand the job market
- Use academic societies for career support
- Use online portals like glassdoor.com to research salaries

Developing a feeling for careers takes time – it is a process!
TUday – May 19, 2021
Next sessions

- April 7 – What do we know about career decisions of (STEM) PhD students and postdocs?
- April 14 – Career interests
- April 20 – Careers in higher education, science communication and policy
- April 21 – Skills & CV writing
- April 28 – Personality & Identity

https://career-services.pages.ist.ac.at/news/looking-to-the-future-general-track/
Thank you for your attention!

Questions?

Where do you see yourself in five years?

I'm so glad you asked! Allow me to bore you for several minutes with a mountain of overly-optimistic BS about my future. I'll either be happily working for you OR winning a Nobel Prize for getting panda bears to hump more.

Either way my future is as bright as a pair of alpaca buttocks bathed in sunlight.