



Development

Technology drives our business — it's our main competitive advantage — and as a result, developers play a pivotal role.

They tackle the hardest problems through analysis, experimentation, design, and elegant implementation.

Developers at Two Sigma build what the organization needs to explore data's possibilities and act on our findings — to mine the past and attempt to predict the future. We create the tools at scale to enable vast data analysis; the technology we build enables us to engage in conversation with the data, and search for knowledge and insight.

We champion a disciplined, collaborative, scientific approach which allows us to meet the immediate needs of the business, while innovating in a way that is constantly forward-looking and future-reaching.

We attract scientists, engineers, and technologists with a true passion for data. We seek individuals who want to build for today and invent for tomorrow. We value curiosity and insight, balanced with pragmatism and practicality. We recognize both the small steps, as well as the broad vision.

Software Developer Position

We are seeking a diverse set of software developers to join our team. With a group that includes a Unix Lifetime Achievement winner, Putnam medallists, ACM Programming competition finalists, and International Mathematics Olympiad medallists, we are always looking for new talent to join this energetic team of high achievers.

Our challenges require mastery of areas such as, but not limited to:

- Kernel level development;
- Machine learning;
- Distributed systems.

Requirements Include:

- At least a bachelor's degree in a technical or quantitative field.
- Experience with C or languages that target the JVM.
- Experience in large-scale systems is highly desirable.
- Exceptional programming skills.
- Strong analytical and organizational skills.
- An obsession with building quality software.

- We are open-minded in our search for critical thinkers who are passionate about technology.

Research Labs Developer Position

We are seeking world-class technologists with cross-functional experience in FPGAs and software to join our growing research labs team, facing a wide array of technical challenges relevant to finance, including, but not limited to:

- High frequency trading problems and optimization of performance-critical code;
- Assessing different technologies and their applications;
- Developing new hardware platforms;
- Implementing trading mechanisms;
- Building tools to monitor and analyse system performance;
- Identifying opportunities for improvement, and prototyping and experimenting with performance optimizations;
- Developing, optimizing, and strengthening the performance-critical component of the system.

Requirements Include:

- At a minimum, a bachelor's degree in computer science and/or electrical engineering.
- Experience analysing performance requirements and designing systems handling very large volumes of real-time data at extremely low latencies.
- Development experience with FPGAs (Verilog/VHDL, functional verification and static timing closure).
- Experience coding software in a low level language such as C/C++.
- Finance experience is not necessary.

Research Engineering Developer Position

We are seeking a diverse set of software developers to join our Research Engineering team. Our research engineers come together with exceptional skills in numerical algorithms, statistical models, linear algebra, grid computing, and other advanced engineering topics.

You will undertake a variety of challenges ranging in size and scope. General responsibilities will centre on:

- Enhancing and expanding Two Sigma's research and trading environments;
- Implementing features for simulators;
- Building and improving the Two Sigma's modelling frameworks.

Requirements Include:

- At least a bachelor's degree in computer science, mathematics or a hard science. An advanced degree in computer science is a plus.
- Experience using major programming languages, including Java, C, or C++.
- Strong analytical and organizational skills.
- Masterful programming abilities.
- Clear and effective communication.

- Ardor for learning and readiness to take on new challenges.
- Financial experience is preferred but not a requirement.

Quantitative Software Developer Position

We are seeking exceptional technologists with advanced mathematical and statistical abilities to join our team. Equal parts code experts and mathematical thinkers, our quantitative software developers bring together technical and analytical expertise to grapple with difficult computational and data-related problems directly and implement efficient and innovative solutions. Entailing a sophisticated knowledge of algorithms, statistics, and high-performance computing, this effort has attracted ACM programming competition finalists, Top Coder contenders, and other highly technical, competitive problem solvers.

Quantitative software developers are responsible for bringing our wealth of ideas to fruition by:

- Designing and implementing trading strategies;
- Building the tools and engines that bring our platforms and models to life.

Requirements Include:

- At a minimum, a bachelor's degree in computer science, applied mathematics, or another technical discipline from a top university.
- Strong numerical programming skills.
- Experience with scientific computing, algorithm development, or pattern recognition.
- A background or interest in building large-scale, real-time, and distributed applications is desired.
- Experience developing high-performance, multi-threaded applications using several programming languages including Java and C++.
- Knowledge of scripting languages such as Perl, Python, and UNIX shell.
- While we analyse the data-rich domain of finance, financial experience is not a requirement.

High Frequency Quantitative Software Developer Position

We are seeking leading software developers to join our dynamic, fast-paced high frequency team. Equal parts code experts and mathematical thinkers, our quantitative software developers bring together technical and analytical expertise to grapple with difficult computational and data-related problems directly and implement efficient and innovative solutions. Entailing a sophisticated knowledge of algorithms, statistics, and high-performance computing, this effort has attracted ACM programming competition finalists, Top Coder contenders, and other highly technical, competitive problem solvers.

High frequency quantitative software developers are responsible for bringing our wealth of ideas to fruition by:

- Leveraging expert knowledge of numerical algorithms, statistical models, grid computing, and other advanced technological methods;
- Building the cutting-edge tools and engines used by our quantitative analysts and high frequency researchers.

Requirements Include:

- At a minimum, a bachelor's degree in computer science, applied mathematics, or another technical discipline from a top university.
- Strong numerical programming skills.
- Experience with scientific computing, algorithm development, or pattern recognition.
- A background or interest in building large-scale, real-time, and distributed applications is desired.
- Experience developing high-performance, multi-threaded applications using several programming languages including Java and C++.
- Knowledge of scripting languages such as Perl, Python, and UNIX shell.
- While we analyse the data-rich domain of finance, financial experience is not a requirement.

High Frequency Developer Position

We are seeking world-class software developers to help build the tools and engines used by our team of quantitative analysts and high frequency researchers. An energetic team of high achievers, this group includes PhDs from top universities, as well as other accomplished professionals.

Responsibilities vary based on the range of backgrounds and experience levels, but will include:

- Facing a wide array of technical challenges that will impact our high frequency strategies;
- Collaborating with world-class technologists from a broad-range of backgrounds and experience levels.

Requirements Include:

- At minimum, a bachelor's degree in computer science.
- Experience analysing requirements and designing high throughput or low latency systems.
- Experience using programming languages such as Java, C, and C++.
- Broad range of technical competencies, including algorithms, data structures, multi-threaded applications, distributed systems, and performance optimizations.

Data Engineering Software Developer Position

We are seeking a data engineering software developer to join our team. Our data engineers are the backbone of Two Sigma's information-gathering mission.

You will develop software that enables us to:

- Amass vast quantities of information that can inform investment decisions;
- Provide that information to our cutting-edge trading and analysis platform;
- Collect, parse, and clean terabytes of data used for research and real-time automated decision-making.

Requirements Include:

- At minimum, a bachelor's degree in computer science.
- Experience using several different programming languages such as Java, Groovy, and Python.
- Experience with large-scale systems is highly desirable.
- Strong programming skills.

- Ability to make extensive use of proprietary in-house file systems, databases, and data flow control systems built in Java and C++, with new languages and technologies continuously being evaluated.
- Obsessive attention to detail.
- A keen interest in building and maintaining large-scale, error-free data sets.
- While we analyse the data-rich domain of finance, financial experience is not a requirement.

Alpha Capture Software Developer Position

We are seeking a driven Web2.0 developer to join our alpha-capture product team.

Partnering with developers across the organization, you will be instrumental in building scalable, multi-server, multi-database web applications that drive Two Sigma's quantitative trading models. T

This undertaking requires the following:

- Integrating dynamic back-end functionalities;
- Implementing compelling, functional user interfaces that support the success of our electronic alpha-capture business;
- Identifying and addressing performance bottlenecks;
- Participating in design and code reviews;
- Defining and communicating best practices for web-based user interface engineering across the organization.

Requirements Include:

- At least a bachelor's degree in computer science. An ability to write well-abstracted, reusable code.
- Proficiency in several programming languages such as Java, Groovy, C or C++.
- Experience with front-end JavaScript libraries like Google Closure, Twitter Bootstrap, jQuery, MooTools, or Dojo.
- Strong working knowledge of current web standards including CSS3 and HTML 5.
- Proficiency in highly scalable frameworks and experience with Java Servlet containers like Tomcat or Jetty is a definite advantage. Knowledge of highly available message queue systems such as RabbitMQ, distributed cache like Membase and distributed computing frameworks like Hadoop is preferable.
- An obsession with building tools and developing scalable, real-time web applications on both front-end and back-end components.

User Interface Developer Position

We are seeking a creative software developer to join a small team responsible for designing and implementing a new web-based platform. This new platform will present a web-based interface to a wide range of different types of users, including data analysts and web developers. You will enable users with ever-changing needs to rapidly perform interactive research tasks and create, share, and tweak their own custom-tailored interfaces. Your contributions will vastly increase productivity for researchers and developers exploring and visualizing massive amounts of data, performing large-scale distributed processing, and controlling various critical systems.

Such user tasks are enabled as the platform will integrate numerous in-house and open-source visualization tools with proprietary high-performance scalable data-analysis tools, exposing them all in a single, easy-to-use experience.

Challenges vary in size and scope, but core responsibilities encompass:

- Collecting requirements for designing, building, and supporting significant elements across the whole platform encompassing its back-end Java services to the front-end web interfaces and even the user interface APIs exposed by the front-end;
- Partnering with quantitative researchers and developers;
- Improving the system based on the evolving needs of its users;
- Training new users.

Requirements Include:

- Strong computer science background.
- Experience with web UI development (JavaScript, AJAX, HTML, servlets).
- Solid Java programming skills.
- At least a basic understanding of Linux and networking.
- Creativity in thought and a demonstrated passion for building useful systems.