

Paul Hein

SOFTWARE ENGINEER · BIG DATA SPECIALIST

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Allen Institute for Neural Dynamics

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Dear Hiring Team,

I am a software engineer with an MS in Computer Science and four years of experience developing software for data-intensive systems in both academic labs and industry. As a software engineer who is passionate about accelerating the pace of scientific advancement and ameliorating the growing reproducibility crisis, I am extremely enthusiastic to be applying for the position of Software Engineer II at the Allen Institute for Neural Dynamics.

During my time in the ML4AI Laboratory as well as at Rocket Mortgage I built several software systems that comprised of a machine learning model processing on top of a terabyte-scale data source. As part of this process, I quickly learned about the necessity of monitoring data sources to ensure the quality of input data into the ML models remained high as well as to detect anomalies when they inevitably occur. The lessons I have learned from the data monitoring and anomaly detection systems I have built previously will be beneficial to the Institute as it seeks to ensure the high quality of data available on its scientific data platform.

Working as a software engineer in both an academic and industry setting has allowed me to gain experience utilizing a wide array of distributed computing resources while adhering to the best practices of software development. I have written software programs for both CPU-intensive and GPU-intensive tasks that leverage high-performance computing clusters to meet the demands of supersized datasets. Additionally, I have designed complex software systems that employ cutting edge cloud computing technologies in order to ensure they remained highly available, fault tolerant, and able to scale as needed. This combination of experiences will allow me to successfully aid the Institute in developing robust data pipelines that accelerate the collection, processing, and analysis of large-scale neurophysiology data.

Apart from my technical expertise, completing and presenting a thesis as part of my MS in Computer Science provided me with ample opportunities to practice communicating solutions to complex computation problems to an audience of scientific subject matter experts. In the same vein, I have greatly enjoyed closely collaborating with scientists throughout my career including domain experts from fields such as agricultural science, planetary science, and microbiology. Undoubtedly, the most exciting element of working as a software engineer at the Allen Institute is having the occasion to collaborate closely with experts in the field of neurobiology.

Having the opportunity to apply my talents at the Allen Institute will provide me with a sense of fulfillment in knowing I will be assisting the greatest minds of this generation in their quest to discover how all of our minds make sense of the complex world around us. It would be an honor to interview for this position, and I look forward to hearing from you. Thank you for your consideration.

Sincerely,

Paul Hein