Seonghyun Park

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EDUCATION

University of California, Berkeley — Berkeley, CA
Bachelor of Arts — Expected Graduation: May 2025
Major in Computer Science — Cumulative GPA: 3.72/4.00

University of California, Berkeley — Berkeley, CA
Continuing as Master of Science in Computer Science — Expected Graduation: May 2026
Relevant Coursework: Deep Neural Network, Computer Vision, Operating Systems and System Programming, Internet Architecture and Protocols, Data Structures, Database Systems, Machine Structures, Computer Graphics and Imaging, Extended Reality Development

PROFESSIONAL EXPERIENCE

Lead Undergraduate Researcher *(Python, C#, Unity, Scenic)* — May 2024 - Present
DOP Center — Berkeley, California
- Conducted research and development on Mixed Reality Stroke Rehabilitation in collaboration with UCSF and Stanford
- Led a team of 8 undergraduates to develop a comprehensive MR stroke rehabilitation application for Meta Quest 3
- Implemented key features, including creating training scenarios, recording trajectory points, processing data with Dynamic Time Warping, and building a network pipeline to transmit patient data and task information to a server using ZMQ
- Designed and implemented personalized algorithms tailored to patients' range of motion, creating progressively challenging tasks that adapted as patients succeeded

Software Engineering Intern *(Python, Javascript, Django, PostgreSQL, HTML/CSS)* — May 2023 - Aug 2023
OrangeShine — Cerritos, California
- Implemented prefetching and indexing in Python, Django to optimize database access, leading to up to 40% improvement in page response times on certain web pages and significantly reducing server load
- Developed 5+ Django-based web application using REST APIs for vendors to manage and edit shipment box sizes with integrated data validation, capturing user inputs and syncing them with a cloud-based SQL database
- Played a major role in upgrading Python and Django affected 10+ company applications, involving modifications to existing codebases, ensuring alignment with the latest software versions for improved security and performance

Software Engineering Intern *(React, Javascript, HTML/CSS)* — Aug 2022 - Nov 2022
Boram Cooperation — Remote
- Implemented and developed a responsive design framework using Bootstrap, optimizing cross-platform compatibility and performance across desktop, mobile, and tablet devices, thereby enhancing user accessibility and interaction
- Enhanced website accessibility and performance, resulting in a 25% increase in user satisfaction based on internal reviews
- The resulting website was well-received by the staff, enhancing the company's online presence and accessibility

RELEVANT EXPERIENCE

1st place in Stanford XR Hackathon Meta & Ramen VR Track | Stanford Immerse the Bay — Nov 2024
- Led the MR development of "Forgotten World," utilizing multiplayer, Mixed Reality, and colocation technologies

Course Instructor | XR Development (CS198) — Aug 2024 - Present
- Designed and delivered course content, leading lectures and evaluating student performance.

UGSI1 / Academic Intern | Data Structure (CS61B) and Machine Structure (CS61B) — Aug 2023 - May 2024
- Supported instructional delivery, facilitated student learning, and graded assignments

PROJECT EXPERIENCE

Diffusion Models on MNIST — Dec 2024
- Designed and implemented a UNet architecture to train a single-step denoising model for MNIST digits, optimizing an L2 loss with Adam and achieving denoised outputs across varying noise levels
- Extended the UNet to a time-conditioned diffusion model using DDPM (Denoising Diffusion Probabilistic Models), integrating scalar time-conditioning and exponential learning rate decay for iterative denoising.

SKILLS

Technical Skills: Python, Java, C++, C, Swift, Go, Assembly, HTML/CSS, JavaScript, SQL, C#, Django, React, Unix/Linux, Git, Docker, Kernel, AWS, Spring, MongoDB, Unity