# Xinhe Zhang

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## STATEMENT

After two years of industry experience and two years in academic research labs, I have found my interest at the intersection of computer engineering and machine learning, especially as they apply to healthcare. My ultimate career goal is to lead my own research team to work at the frontier of AI healthcare technologies, in academia or industry.

## EDUCATION

**Carnegie Mellon University** Pittsburgh, PA

*Master of Science in Electrical and Computer Engineering; GPA: 4.0 / 4.0* *Dec 2020*

*Bachelor of Science in Electrical and Computer Engineering with University Honors; GPA: 3.68 / 4.0* *May 2018*

- Carnegie Institute of Technology Research Honors

## RESEARCH PROJECTS

**Synthetic Data for Deep Neural Networks** Pittsburgh, PA

*Carnegie Mellon University Robotics Institute Navigation Laboratory* *Sep 2019 - Present*

- Created synthetic road scene images with Carla simulator and Autodesk Maya and trained neural networks in Detectron2 and PyTorch to detect objects in real images for autonomous driving tasks.

**Safety Analysis of Transcranial Electrical Stimulation** Pittsburgh, PA

*Carnegie Mellon University Grover's Laboratory* *Sep 2019 - Present*

- Simulated human head FEM models in COMSOL and assessed safety measurements for transcranial electric stimulation as part of a novel human brain stimulation project.

**Diabetic Retinopathy Detection with Deep Learning** Pittsburgh, PA

*Carnegie Mellon University Engineering Research Accelerator* *Sep 2017 - May 2018*

- Designed and developed a machine learning pipeline that first captured the underlying domain knowledge from retina fundus images and classified processed results.

**Wireless Backend for Virtual Reality Devices** Pittsburgh, PA

*Carnegie Mellon CyLab Security and Privacy Institute* *Sep 2016 - Dec 2016*

- Researched on the implementation of a wireless backend for the Oculus hardware device.

## WORK EXPERIENCE

**Guangdong 999 Brain Hospital** Guangzhou, China

*Assistant to the Dean* *Jun 2019 - Aug 2019*

- Processed thousands of patient data entries into a machine-readable format for research purposes.
- Evaluated million-dollar machine learning products by analyzing embedded technologies for the Vice President.

**Duolingo, Inc** Pittsburgh, PA

*Android Developer* *Nov 2018 - May 2019*

- Collaborated with the China team and communicated with vendors to establish push notification in China.
- Introduced UI/UX improvements to the purchasing screens on Android and boosted membership sales.

**Expii, Inc** Pittsburgh, PA

*Engineer Intern* *Aug 2018 - Oct 2018*

- Implemented changes across the stack and collaborated with the content team to boost SEO results to Google Search's first-page ranking by editing embedded metadata as the sole engineer.

**Facebook, Inc** Seattle, WA

*Software Engineer Intern* *May 2018 - Aug 2018*

- Built a full-stack web app that queries from databases and collectively displays the results with user-specified parameters as part of the Facebook Analytics Automated Insights.

**Google, Inc** Mountain View, CA; Boulder, CO

*Software Engineering Intern* *May 2017 - Aug 2017*

- Created a web data visualization to compute logic relationships for 150 monthly professional users.
- Improved filtering methods and data animation by manipulating D3.js for 100 daily professional users.

*Engineering Practicum Intern* *May 2016 - Aug 2016*

- Deployed a C++ backend server that retrieves data from a large, spatially indexed table for geospatial data.
- Researched and crafted an interactive web display of 3d geospatial data with WebGL and Google Maps API.

## ACADEMIC PROJECTS

**Towards Robust Blood Vessel Segmentation for Retinal Images** *Mar 2020 - May 2020*

- Added domain discriminator to predict the domain of given feature map to improve the cross-data set testing performance on the state-of-the-art model IterNet.

**Second Language Acquisition Modeling with Deep Learning** *Sep 2019 - Dec 2019*

- Adapted and analyzed various deep learning models to predict errors second language learners are likely to make in the future and beat the given baseline 85.6%.

**Experimenting Time-Space-Aware Memory for Deep Reinforcement Learning** *Mar 2018 - May 2018*

- Examined time-based and location-based structure to the replay memory and combined the recent-experience-based approach in Memory Networks and coordinate-based approach in Neural Map.

## TEACHING EXPERIENCE

**Deep Reinforcement Learning (Teaching Assistant)** *Fall 2020*

**Signals and Systems (Head Grader)** *Spring 2020*

**Signals and Systems (Grader)** *Fall 2016, Spring 2018, Fall 2019*

**Fundamentals of Programming (Teaching Assistant)** *Fall 2015, Spring 2016, Spring 2017*

**Principles of Computing (Teaching Assistant)** *Summer 2015*

## LEADERSHIP

**Talent Pool (Startup)**

*Co-Founder* *Oct 2017 - May 2019*

**IEEE-Eta Kappa Nu Honor Society Sigma Chapter**

*Corresponding Secretary and Elected Member* *May 2017 - Aug 2018*

**CMU Summit on U.S.-China Innovation and Entrepreneurship**

*Co-President and Panel Director* *Feb 2017 - Aug 2018*

**Carnegie Mellon University**

*College Reading and Learning Association Certified Level 2: Advanced Tutor* *Feb 2015 - May 2018*

## SKILLS

**Languages**: Python, Javascript, Kotlin, C/C++, SQL, LaTeX

**Tools**: PyTorch, TensorFlow, Keras, Detectron, React, Redux, Express, AWS, COMSOL