

Yiheng Xie

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Education

B.Sc. Computer Engineering, Brown University

Graduation: May 2022

GPA: 4.0/4.0

Research

Brown Visual Computing Project Lead (Brown University)

May 2021 – Present

- Leading review project *Neural Fields in Visual Computing*, which surveys 250+ papers on an emerging technique in visual computing.
- **Advisors:** Srinath Sridhar (Brown University), Vincent Sitzmann (MIT)

Unity Technologies Researcher (Tel Aviv, Israel)

May 2020 – Present

- Investigating 3D reconstruction and differentiable rendering techniques at the Digital Twin Group.
- Developed a production-ready geometry refinement algorithm via differentiable rasterization.

HCRI Robotics Lab Research Assistant (Brown University)

June 2019 – Dec 2021

- Produced a large scale code repository, which implemented our group's previous work – *Teaching a Robot Tasks of Arbitrary Complexity via Human Feedback* – on a physical, real-world robot.
- Proposed a sample-efficient and generalizable reinforcement learning agent via a “Visual Rewrite” world model, first author.
- **Advisor:** Michael L. Littman

LEHN Nanoscience Lab Research Assistant (Brown University)

Dec 2018 – Dec 2020

- Studied the mechanical properties of novel 2D nanomaterials. Proposed a novel research methodology: a computer vision algorithm for analyzing tensile testing data.
- **Advisor:** Robert H. Hurt

Publications

Learning Generalizable Behavior via Visual Rewrite Rules, Yiheng Xie, Shangqun Yu, Mingxuan Li and Michael Littman, submitted to AAAI-RLG 2022

Neural Fields in Visual Computing and Beyond, Yiheng Xie, Towaki Takikawa, Shunsuke Saito, Or Litany, Shiqin Yan, Numair Khan, Federico Tombari, James Tompkin, Vincent Sitzmann and Srinath Sridhar, submitted to Eurographics State-of-the-Art Reports (STARs) 2022

Shear failure in supported two-dimensional nanosheet van der Waals thin films, Cintia Castilho, Dong Li, Yiheng Xie, Huajian Gao and Robert Hurt, Carbon 2021

Teaching

ENGN 0040 Dynamics and Vibrations (Brown University)

June – Aug 2021

- Hosted weekly office hours for homework and design projects.

CSCI 2952K 3D Computer Vision and Machine Learning (Brown University)

Sept – Dec 2020

- Hosted weekly literature review workshops and handled grading for this graduate-level seminar.

ENGN 1580 Communication Systems (Brown University)

Jan – May 2020

- Staff note-taker for the upper-level Computer Engineering elective.

Work Experience

AWS Ethos Hub Part-time, Cloud Developer (Providence, RI)

Oct 2021 – Present

- Working with electric utility providers to increase grid resilience during extreme weather events.
- Developing a predictive model for robust vegetation management to reduce downed power lines.
- All current and future projects focus on accelerating the renewable energy transition.

Learnable Group Lead, Natural Language Processing (Boston, MA)

Jan – June 2020

- For our industry-leading education product, I led a team of 5 engineers to develop a natural language processing algorithm for parsing messy student handwriting into structured machine language.
- Product deployed in April 2020, and recently achieved over 99% accuracy in the 2021 Gaokao.

Auto-Intelligence Intern, Deep Learning (Shanghai, China)

June– August 2018

- Worked with full-time engineers to deliver an automated defect-inspection solution for automotive manufacturing clients. Project used the state-of-the-art segmentation networks.

Service and Leadership

DEI (Diversity, Equity & Inclusion) Advisory Board (Westtown School)

2018 – Present

- Appointed by the Head of School to serve on an advisory board of trustees, faculty members and alumni. Formulated policies and initiatives on diversity, equity and inclusion at my alma mater.

Admissions Tour Guide (Brown University, Westtown School)

- Gave bilingual tours to prospective families at Westtown School, head of program. **2017 – 2018**
- Gave weekly large group tours for prospective families at Brown University. **Jun – Aug 2019**

Meiklejohn/MAPS Peer Advisor (Brown University)

- MAPS Mentor: Advised 2nd-year students in academic planning and major declaration. **2020**
- Meiklejohn Peer Advisor: Along with a faculty member, advised 1st-year students in navigating college academics and campus life. **2019**

Awards

- CMMRS Pre-doctoral Research School** (Saarbrücken, Germany) **2021**
- A selective, week-long, all-expenses paid summer research symposium hosted by Cornell, Maryland, the Max Planck Institute for prospective PhD students.
- Tau Beta Pi Engineering Honor Society** (Brown University) **2020, 2021**
- Invited to join the national Honor Society, which consists of the top-fifth of the graduating class.
- Brown-Connect Israel Entrepreneurship Signature Program** (Brown University) **2020**
- Awarded \$4000 for an immersive summer internship in Israel.
- Undergraduate Teaching and Research Award** (Brown University) **2019**
- Awarded \$4,500 research stipend to pursue the 6-month research project at the LEHN Nanoscience Lab with Professor Robert Hurt. Publication accepted to *Carbon*.
- Nelson Center for Entrepreneurship Synapse Barcelona Program** (Brown University) **2019**
- Part of a selective group of six students in an all-expenses-paid trip, visiting and connecting with entrepreneurs to explore the start-up culture in Barcelona, Spain.
- Hazeltine Engineering Grant** (Brown University) **2019**
- Awarded \$1000 project stipend for developing an IoT bike helmet with integrated safety features.
- Nelson Center Explore Grant** (Brown University) **2019**
- Awarded \$250 project stipend for bottom-up market research for the IoT bike helmet.
- BDW Maker Grant** (Brown University) **2019**
- Awarded \$500 project stipend to cover initial material costs for the IoT bike helmet project.
- Innovation Grant** (Westtown School) **2018**
- Awarded \$500 in project stipend to build an IoT smart chicken coop for the 5th grade science curriculum at Westtown School. Project was featured in the [*Independent Seminar Series*](#).
- Alumni Association Highest Scholarship Award** (Westtown School) **2018**
- Awarded to the top two students in grades 11-12.
- Charles K. Brown III Math Award** (Westtown School) **2018**
- Awarded to the top student in mathematics.
- Peter Lane Math Award** (Westtown School) **2018**
- Awarded to the student who have shown both excellence and a collaborative spirit in mathematics.
- Kaesemeyer Leadership Award** (Westtown School) **2017**
- The most prestigious award at Westtown School, for students who have demonstrated exemplary leadership in service to the community.