

Esther Robb

Website: estherrobb.com
Email: erobb@vt.edu
GitHub: github.com/e-271

EDUCATION

Virginia Tech

M.S. in Computer Engineering
Bradley Fellowship Scholar
Advised by Prof. Jia-Bin Huang

Blacksburg, VA
2019–Current
GPA: 3.66

Virginia Tech

B.S. in Computer Engineering
Magna Cum Laude, Class rank 25/177

Blacksburg, VA
2016–2019
GPA: 3.71

WORK EXPERIENCES

Google Brain

Student Research Intern, TF-Agents team
Host: Sergio Guadarrama

(Remote) San Francisco, CA
Summer 2020

- Improved generalization and performance for adversarial inverse reinforcement learning using a disentanglement of task-specific rewards. Plan to submit to ICML 2021.

Google Cerebra

Student Research Intern, Sesame team
Host: Wen-Sheng (Vincent) Chu

Mountain View, CA
Summer 2019

- Developed methods to generate novel and high-quality identity- and attribute-conditioned face images with strong identity preservation.

Vision and Learning Lab at Virginia Tech

Graduate Research Assistant
Advisor: Prof. Jia-Bin Huang

Blacksburg, VA
2019–Current

- Improved state-of-the-art long-tail instance segmentation using stochastic background class loss dropping. Accepted in AAAI 2021.
- Developed novel low-shot GAN domain adaptation methods for high-quality and diverse image generation by uncovering a low-dimensional, expressive, and interpretable parameter space. Submitted to ICLR 2021.
- Improved performance on image reconstruction tasks by developing new decoder architectures using neural architecture search. Published in ECCV 2020.

SuperDARN at Virginia Tech

Undergraduate Research Assistant
Supervisor: Prof. J. Michael Ruohoniemi

Blacksburg, VA
Summer 2018

- Improved automatic processing using unsupervised learning, affecting several decades of data on ionospheric conditions collected from dozens of radars worldwide. Research presented in AGU 2018 and SuperDARN Workshop 2018.

Xin Group at Virginia Tech

Undergraduate Research Assistant
Supervisor: Prof. Hongliang Xin

Blacksburg, VA
2016–2017

- Created an interface for interacting with a regression algorithm which discovers chemical catalysts and creating visualizations. Research published in ACS 2018.

Rincon Research Corporation

Computer Engineering Intern

- Led a team of interns developing high-precision GPS positioning on new Android hardware.

Chantilly, VA

Summer 2017

PUBLICATIONS

DropLoss for Long-tail Instance Segmentation

AAAI 2021

Ting-I Hsieh*, Esther Robb*, Hwann-Tzong Chen, Jia-Bin Huang

Few-shot Adaptation of Generative Adversarial Networks

arXiv 2020

Esther Robb, Wen-Sheng Chu, Abhishek Kumar, Jia-Bin Huang

Preprint

NAS-DIP: Learning Deep Image Prior with Neural Architecture Search

ECCV 2020

Yun-Chun Chen, Chen Gao, Esther Robb, Jia-Bin Huang

Classifying SuperDARN Backscatter using Machine Learning Algorithms

AGU 2018

Esther Robb, Xueling Shi, Shibaji Chakraborty, J Michael Ruohoniemi, Joseph BH Baker, Maimaitirebike Maimaiti

Machine-learning energy gaps of porphyrins with molecular graph representations

ACS 2018

Zheng Li, Noushin Omidvar, Wei Shan Chin, Esther Robb, Amanda Morris, Luke Achenie, Hongliang Xin

PROJECTS

NLP Analysis of Cambridge Analytica event

Big Data Text Summarization senior design project

Generate analysis and a single-page summary of over 10,000 news reports of the Cambridge Analytica security breach event using supervised and unsupervised natural language processing methods. vtechworks.lib.vt.edu/10919/86395

Integrated embedded system design

Embedded Systems senior design project

Led a team of students in building an integrated robotic game using 4 microcontrollers, two rover platforms, a robotic arm, WiFi communication, and various sensors and peripherals. youtu.be/L4DLoqMPopM

SCHOLARSHIPS AND AWARDS

Bradley Graduate Fellowship

2019-Current

Tuition coverage and stipend awarded to top U.S. graduate students

Google Summer of Code

Summer 2018

Grant awarded to the top 2 proposals for an open-source research project

Dean's List

2016-Current

Awarded to students based on GPA

EXTRACURRICULAR ACTIVITIES

Volunteer for Habitat for Humanity

2016–2017

- *Worked with experts and student volunteers to construct houses for local families.*

Volunteer for The Campus Kitchen

2017–2018

- *Distributed food to families at a local food pantry.*

Volunteer for FIRST Robotics

2016

- *Assisted middle school students with science project presentations at a robotics competition.*