MICHAEL SUGUITAN

m.jp.sgtn@icloud.com • michaelsuguitan.com
msuguitan • msgtn • LzEyxcsAAAAJ

Experience

07/2023—10/2024 **Modlee**, *Remote*, Machine Learning Research Engineer

Led the development of MLOps tools for meta-machine learning, from zero to hundreds of users. Developed tools for machine learning experiment documentation, including client-facing APIs and backend servers and databases (PyTorch, AWS, GCP, vector databases, user evaluations). Researched meta-learning for neural architecture generation with transformer models.

03/2022—12/2022 **ABB**, *Raleigh, NC*, Postdoctoral Machine Learning Researcher

Researched deep learning and computer vision for robot pick-and-place applications. Fine-tuned perception models for robotic manipulation (PyTorch, OpenCV, Docker, Azure).

10/2016—12/2021 **Cornell University**, *Ithaca, NY*, PhD Candidate, Human-Robot Interaction Researcher

Researched design, artificial intelligence, and telepresence for human-robot interaction. Designed and built an open-source robot telepresence platform (mechatronics, CAD, software engineering, user interface and experience design). Created multimodal neural networks for generative robot behaviors (PyTorch, TensorFlow, machine / deep learning). Deployed user evaluations and used statistical analyses to derive research results (data science, Qualtrics, Amazon Mechanical Turk, Python Pandas and SciPy). Presented findings in several academic publications.

05/2021—08/2021 **Facebook AI Research**, *Remote*, Machine Learning Research Intern

Researched neural networks for multimodal robot behavior generation (PyTorch, Qualtrics). Used multimodal machine learning techniques for robot movement generation from images.

02/2019—08/2019 **Honda Research Institute Japan**, *Wako, Saitama, Japan*, Machine Learning Research Intern

Researched applications for robot behavior generation and modification with neural networks (TensorFlow, Qualtrics). Deployed multimodal models on different robot embodiments.

09/2018—12/2018 **Samsung Research America**, *Mountain View, CA*, Machine Learning Research Intern

Researched generative networks for translating human movements to robots (TensorFlow).

08/2015—05/2016 **NASA Marshall Space Flight Center**, *Huntsville, AL*, Research Intern

Designed controllers, characterization tests, and circuit boards for an electromagnetic actuator (circuit design, mechatronics, Python).

Skills

Programming Python, JavaScript, machine learning (PyTorch, Keras, TensorFlow, SciKit-learn, ONNX, MLFlow), data science (Python Pandas and SciPy, statistical analysis), computer vision (OpenCV), MATLAB, Linux, Git, Docker, AWS, Azure, GCP, web development

Engineering Design (Fusion 360, SolidWorks), prototyping (3D printing, laser cutting, machining), kinematic analysis, mechatronics, circuit design, embedded systems (microcontrollers, Raspberry Pi)

Education

09/2024—Present **Recurse Center**, *Self-directed technical retreat for programmers*

Working on projects involving hardware, machine learning, and human-computer interaction.

2016—2022 **Cornell University**, *PhD in Mechanical Engineering, Minor in Computer Science*

Teaching Assistant: MAE 2250 (Mechanical Synthesis), INFO 3300 (Data-Driven Web Applications). Organizations: Robotics Graduate Student Organization (Vice President), Sibley Grads in MAE (Outreach Volunteer), The Cornell Daily Sun (Photographer), PhD Commercialization Fellow.

2012—2015 **North Carolina State University**, *BS in Mechanical Engineering, Minor in Programming*

Organizations: ASME Design Team (Robotics Team Lead), IEEE Robotics Team, University Scholars Program, University Tutorial Center (Physics and Engineering Tutor). GPA: 4.0/4.0.

Publications

[1] **Michael Suguitan** and Guy Hoffman. Blossom: A Handcrafted Open-Source Robot. In *ACM Transactions on Human-Robot Interaction (THRI)*, 2019.

[2] **Michael Suguitan**, Mason Bretan, and Guy Hoffman. Affective Robot Movement Generation Using CycleGANs. In *ACM/IEEE International Conference on Human-Robot Interaction (HRI) Late Breaking Reports*, 2019.

[3] **Michael Suguitan**, Randy Gomez, and Guy Hoffman. MoveAE: Modifying Affective Robot Movements Using Classifying Variational Autoencoders. In *ACM/IEEE International Conference on Human-Robot Interaction (HRI)*, 2020.

[4] **Michael Suguitan**. Robots as Humanizing Post-Digital Media. In *International Conference on Social Robotics (ICSR) Metaphors for HRI Workshop Submissions*, 2020.

[5] **Michael Suguitan** and Guy Hoffman. You Are (Not) The Robot: Variable Perspective Motion Control of a Social Telepresence Robot. In *ACM Conference on Human Factors in Computing Systems (CHI) Extended Abstracts*, 2021.

[6] Patrícia Alves-Oliveira, Maria Luce Lupetti, Michal Luria, Mafalda Gamboa, Lea Albaugh, Waki Kamino, Anastasia K. Ostrowski, David Puljiz, Pedro Reynolds-Cuéllar, Marcus Scheunemann, **Michael Suguitan**, and Dan Lockton. Collection of Human-Robot Interaction Metaphors. In *ACM Conference on Designing Interactive Systems (DIS)*, 2021.

[7] **Michael Suguitan** and Guy Hoffman. A Portrait of the Robot as a Communicative Medium: Using the DIY Blossom Robot for Accessible Embodied Telepresence. In *International Conference on Social Robotics (ICSR) Student Design Competition (Finalist)*, 2021.

[8] **Michael Suguitan** and Guy Hoffman. What Is It Like to Be a Bot? Variable Perspective Embodied Telepresence for Crowdsourcing Robot Movements. In *Personal and Ubiquitous Computing*, 2022.

[9] **Michael Suguitan**. At Least, Be Human: Humanizing the Robot as a Medium for Communication. In *RoboPhilosophy*, 2022.

[10] **Michael Suguitan**, Nick DePalma, Jessica Hodgins, and Guy Hoffman. Face2Gesture: Translating Facial Expressions Into Robot Movements Through Shared Latent Space Neural Networks. In *ACM Transactions on Human-Robot Interaction (THRI) Special Issue on AI for HRI* 2023.

Achievements

2021 **Scientific Rigor Presenter Award**, Cornell Sibley Graduate Research Symposium [8].

Most Market-Ready, Cornell Digital Agriculture Hackathon. Designer and data scientist for a device that uses computer vision to appraise fruit freshness and implement dynamic pricing.

2020 **Cornell Commercialization Fellow**: Entrepreneurship program for graduate students to explore the commercial viability of their research. Conducted over 100 customer discovery interviews with STEM educators through the NSF I-Corps program.

2019 **Third Place**, HRI Late Breaking Reports [3].

2016 **Best First-Time Hack**, Cornell BigRed//Hacks. Mechanical designer and programmer for PuppetPlant, a robotic plant that conveys energy consumption through lights and movement.

2015 **First Place**, ASME IMECE International Design Competition (Robots for Relief). Team leader for the NCSU WolfTank, a robot designed to tread an obstacle course of water, sand, and stairs to safely deliver a payload of grains.

Nominee, NCSU College of Engineering Senior Award for Citizenship and Service.

First Place, ASME Student Design Competition (Robots for Relief).

First Place, NCSU Mechanical Engineering Senior Design Project. Programmer for a uranium pellet handling project sponsored by General Electric.

2014 **First Place**, ASME Student Design Competition (UAV Challenge).

Volunteering and Outreach

Reviewer	Transactions on Human-Robot Interaction, Human-Robot Interaction (full papers, demonstrations), AI-HRI, International Journal of Social Robotics
Cornell RGSO	Vice president of the Cornell Robotics Graduate Student Organization, where I helped host weekly research seminars and foster communication across the various Cornell robotics labs.
Robotics Outreach	Designed and led several demonstrations and workshops to introduce younger generations to robotics (New York State 4-H, Cornell BRB Kids' Science Day, Expanding Your Horizons).
SiGMA Outreach	Led other Cornell graduate students in STEM outreach presentations and performed in teleconcerts for the local community.