Johanna S. Karras

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EDUCATION

University of Washington Allen School — **Seattle, WA**
PhD Computer Science — *September 2021*
Computer Vision and Machine Learning
Advised by Dr. Steven Seitz and Dr. Ira Kemelmacher

California Institute of Technology — **Pasadena, CA**
B.S Computer Science, minor in Information and Data Science — *June 2021*
GPA 3.8/4.0, Teaching Assistant, NCWIT Collegiate Award Finalist

KEY SKILLS

- Computer vision expertise in computational imaging, object detection, and object tracking
- Machine learning proficiency in deep neural networks using TensorFlow, Keras, and PyTorch
- Strong programming skills in Python, C++, C, Java, and MySQL
- Fluency in English, Finnish, Spanish, French

RESEARCH PROJECTS

Deep Neural Networks for Black Hole Imaging — **Pasadena, CA**
Prof. Katie Bouman's Group at Caltech — *April 2020 – June 2021*
- Researched the first deep neural network image reconstruction algorithms for black hole imaging.
- Showed improvement in average mean-absolute-error from 1.396e-4 to 2.046e-5 when compared to a state-of-the-art regularized maximum likelihood optimization method.
- Presented extended abstract and poster at the WiCV workshop at CVPR on June 19, 2021.

Dual Task Learning for Species Classification and Annotation — **Pasadena, CA**
Final Course Project for Prof. Pietro Perona — *Spring 2021*
- Developed a convolutional neural network using transfer learning for simultaneous fine-grain image classification and multi-label attributes annotation using the Caltech UC-Davis Birds 200-2011 datasets. Showed 11% improved accuracy on fine-grain attributes classification.

PIMCO/Caltech: Independent Research Project — **Pasadena, CA**
Mentored by Prof. Adam Wierman — *October 2019 – March 2020*
- Developed novel machine learning and natural language processing methods for financial forecasting in a joint PIMCO/Caltech project.

INTERNSHIPS

Streetscope Inc. — **Pasadena, CA**
Computer Vision & Machine Learning Intern — *April 2021 – Present*
- Researched and implemented deep neural networks for object detection, object tracking, and video processing solutions applied to traffic safety applications using Tensorflow and Python.

J.P. Morgan & Chase — **New York, NY**
Software Engineering Intern — *June 2019 – August 2019*
- Designed and implemented a new internal-facing web app using React and Java, supported with Jules and Gaia Cloud Platform Service.

Microsoft Artificial Intelligence & Research — **Bellevue, WA**
Software Engineering "Explore" Intern — *June 2018 – September 2018*
- Designed and implemented two new features for Cortana, a voice-controlled AI personal assistant, relating to midterm elections and real estate using machine learning, natural language processing, C, and new geospatial APIs.