

STEPHEN NUSKE

DIRECTOR OF COMPUTER VISION AND MACHINE LEARNING

WORK EXPERIENCE

Abundant Robotics – Director of Computer Vision and Machine Learning

June 2015–Current

Leading the computer vision system development for an agricultural mobile manipulation robot. Responsible for the design from the ground up from the imaging sensors, image processing algorithms, 3D mapping, visual odometry to the machine learning frameworks. Deployed on autonomous field robot over 100's of hours of operation.

Carnegie Mellon University – Systems Scientist now Adjunct Faculty

Nov 2008 – Sep 2017 (Adjunct 2017–Current)

Principal Investigator on numerous industry and government research programs. Ran research group of 8 engineers/students/post-docs developing technology for several industries. Extensive cross-disciplinary collaborations with plant-scientists and genetics/phonemics experts.

Patton Nuske LLC – Computer Vision Consultant

January 2013 – June 2017

Produced and deployed computer vision systems for a variety of companies. Including real-time closed-loop helicopter landing systems, autonomous wheelchair sensing systems and agricultural robotics.

BSD Robotics – Computer Vision Intern

November 2004–2005

Developed software for medical laboratory automation equipment. Designed algorithm to optimize placement of end-effector to take blood samples from filter paper card using optical scanner data.

EDUCATION

PhD at University of Queensland, Australia & Commonwealth Science and Industry Research Organization

2004–2009

Robust visual localization during drastic changes in lighting. Deployment on automated heavy-metal transport trucks and underwater autonomous submarines. Incorporated generative 3D lighting model to predict visual appearance.

Bachelor of Software Engineering, University of Queensland, Australia

2001 - 2004

High distinction in Artificial Intelligence, Discrete Mathematics, Computer Graphics. Minor electives in Philosophy
Bachelor Thesis – Computer Vision System for Robot Soccer Team – 60Hz system in natural lighting – 2nd in World Cup – 2004

SKILLS

- Project conception, integration, execution
- Computer Vision; 2D/3D Object detection, recognition, classification, tracking, scene segmentation, localization, mapping.
- Machine Learning; ConvNets – Object-detection, Semantic Segmentation, Genotype Prediction. Caffe2/Pytorch, RandomForest, Semi-supervised and Un-supervised Learning Deployment.
- Languages (recent/frequent use); C++, Python, Bash, SQL/Postgresql
- Languages (familiar); Cuda, OpenGL, Matlab, Java



PROFILE

Computer vision and machine learning scientist & engineer with a passion to design robust systems that solve real-world problems. Working at all levels of implementation, from low-level engineering through to high-level project management. Comfortable either executing systems solo or directing small groups of talented engineers. Experienced in many technical areas including object-detection, scene segmentation, localization, tracking, mapping, machine-learning, phenomics/genotype prediction, deep convolutional neural nets.

CONTACT

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HOBBIES

Adventures with family
Golf and soccer
Visiting relatives and friends
Kayaking and swimming