

TREVOR CLARK

Staff Software Engineer

Education



Stanford M.S. Mech Eng
(2009 - 2011)



UC Davis B.S. Applied
Physics (2004 - 2008)



Deep Learning
Specialization (Coursera /
Andrew Ng)



Computer Vision
NanoDegree (Udacity)



Reinforcement Learning
Specialization
(University of Alberta
Online)

Skills

Python	* * * * *
OpenCV	* * * *
Pytorch	* * * *
Qt	* * * *
TF2/Keras	* * *
Matlab	* * *
C++	* * *
C#	* * *
Cognex	* * *
VTK	* *
Wincaps III	* *

Contact



[jtclark2.github.io](https://github.com/jtclark2)



github.com/jtclark2



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Hayward, CA



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Work Experience

Stealth: Staff Software Engineer

(Oct 2022 - Present)

- Led software development / architecture
- Developed ML / Computer Vision Tools

Intuitive Surgical: Senior Software Engineer

(June 2017 - Aug 2020)

- Created computer vision software (Cognex) for feature detection / targeting and classification (weld quality assessment) for numerous weld applications
- Wrote automation workflow state machine for welding system: hardware integration, GUI (C#)
- Designed software architecture to control test equipment for a fully automated production line with <10s takt time, integrating SCARA arms / vision systems / conveyors (Denso / Wincaps III)

Intuitive Surgical: Software Automation Manager

(Aug 2015 - June 2017)

- Managed software development team, supporting all automated production equipment for instrument and accessory lines (> 1 million instruments / year)
- Balanced competing priorities, urgent deadlines, and customer needs, which allowed team members to focus on development
- Drove re-architecture of codebase into a common framework, unifying isolated projects into extensible and re-usable code with high enough test coverage to start using continuous integration principles

Intuitive Surgical: Software Automation / Mfg Engineer

(Nov 2013 - Aug 2015)

- Led software development for Instrument Performance Testers, reducing takt time by 80%. This success led to factory-wide adoption (Python and Matlab)
- Implemented torque measurement & cable tensioning control algorithms (Matlab). This improved precision and accuracy, leading to Cpk increases of up to 3x across 24 instrument lines

Luidia (eBeam Interactive Whiteboards): Software / Mechanical Design Engineer

(2011-2013)

- Wrote Kalman filter, reducing stylus latency by 50% and increasing effective precision by 2.5x
- Optimized stylus firmware responsiveness with sleep timer improvements (PIC assembly)
- Developed eBeam Glove to control a cursor and use hand poses to interact with eBeam software

NASA Ames & SETI: Hyperspectral Image Processing Researcher

(2007-2009)

- Developed software tools to perform mapping of key minerals on the surface of Mars (IDL & ENVI)
- Simulated Martian surface, modeling mineral mixing, light contributions, atmospheric effects, and sensor imperfections (warping, noise, frequency sensitivity curves), prior to processing the CRISM data pipeline.
- Developed noise-filtering algorithm for Compact Reconnaissance Imaging Spectrometer for Mars (CRISM), allowing continued use years after failure of a critical cooler

Relevant Academic / Internship Experiences

(2004-2011)

- California Solar Advisory Board - Student Researcher: Assess and present technologies to lawmakers
- UC Davis / Relativistic Heavy Ion Collider - Research Assistant: Isolated individual particle pathways in heavy-ion collisions, increasing knowledge of physics immediately following The Big Bang (C++)

Independent Projects

- **CardShark:** Wrote program to play the SET card game, performing real-time card detection and identification and producing output camera feed which overlays solution information
- **Image Captioner:** Created and trained model to process input images and generate english sentence descriptions of the scene
- **Deep Q-Learner:** Designed a Deep Q learner from scratch to solve OpenAI Gym's LunarLander-v2
- **Facial Keypoint Tracker:** Developed and trained keypoint tracking model with the Youtube Faces Dataset, using Haar Cascades and a CNN network
- **Segmentation Pipeline:** Wrote a data segmentation pipeline using segmentation_models_pytorch's Unet architecture, and summarize the data with a convex hull in post-processing
- **Auto-encoder for Anomaly Detection:** Developed model and post-processing pipeline to detect key features and unanticipated defects in manufacturing images using very limited training datasets