Anton Treskunov

Software engineering, research, prototyping — Comp. Vision, ML/DL, UX, VR

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OBJECTIVE

Innovative and self-directed software engineer with extensive experience in computer vision, machine learning, and virtual reality. Seeking to leverage my expertise in creating cutting-edge solutions and impactful software.

EXPERIENCE

Kelly Services, remote — Lidar consultant for **Nissan**

April 2023 — March 2024

Self-driving car project.

- Created a tool to evaluate the quality and visualize problems of tracking objects detected in point clouds. (Python, ROS)
- Developed a Python library to convert raw Velodyne Lidar data to point cloud outside of ROS. Github: snusnumrick/velodyne

NavTrac, remote — *Computer* Vision *Engineer*

June 2021 — October 2022

Detection and recognition of moving trucks and shipping containers.

- **Activity Detector**: Extracted segments from continuous video feeds containing truck motion at gates. Utilized tools such as OpenCV, Yolox, Triton Server, Kalman Filter, Visual Similarity, and Deep Matching. (PyTorch, Python, Postgres DB). The tool is heavily used in production and improved detection accuracy.
- **Key Frames Extraction**: Extracted a representative set of keyframes from video based on moving text detection, recognition, and tracking, reducing manual review efforts.

Doxel.AI, Redwood City — *Computer* Vision *Engineer*

September 2017 — June 2021

Point cloud registration and deviation detection.

- Project **HALT**: Aligned point clouds from moving LIDAR with a 3D model using 2D images and top-down views (PCL, Open3D, OpenCV, C++). Implemented in production, reducing alignment errors and human intervention..
- **Matching**: Conducted automatic deviation analysis of aligned point clouds vs 3D models per construction element.

SKILLS

Programming Languages: C++, Python, JavaScript

Tools and Frameworks: PCL, OpenCV, SciPy, SkLearn, PyTorch, Triton server, ROS, Node.JS

Specializations: Computer Vision, Machine Learning, Deep Learning, Robotics, Virtual Reality, Human-Computer Interaction

Fast UX prototyping

AWARDS

Outstanding Achievement for contribution to 2013 Samsung TV Smart Remote Control, including 3 US patents and production-ready design and software.

Best Medical Application for virtual reality exposure therapy treatment of PTSD, 2008, Laval Virtual, France.

Best Paper for Flatworld software architecture. Army Science Conference, Orlando, 2004.

RESEARCH

Authored multiple peer-reviewed papers and holds several patents.

- **AR alignment**: Aligned point clouds obtained from stationary scans using 2D representations and fiducial markers; heavily used in production; a US patent issued (US-20220262084-A1).

Google ATAP, Mountain View — *Computer Vision Engineer*

February 2016 — March 2017

Image stitching and visual search. C++, Android, OpenCV.

- Developed real-time stitching of images from a hand-held camera on Android (Open CV, C++).
- Implemented visual search of captured images in a database of previous captures to continue stitching (Bag of Visual Words).

Samsung Research, Mountain View — HCI *Research*

October 2009 — July 2015

New ways of human interactions with big screens. C++, Node.js

- Developed a system for entering channel numbers by recognizing thumb writing on TV remote touchpads (K-nearest neighbor stroke recognition). Led the project from ideation through prototyping and productization for 2013 Samsung TVs.
- Part of the team that proposed and implemented the touch-based remote concept for 2013 Samsung TVs, leading to several patents and internal competition wins. (JavaScript, Node.js)

ICT / USC, Marina del Rey, CA — *Computer Scientist*

October 2003 — June 2009

Virtual Reality, Smart Projectors. Research, implementation lead.

- Led the software development for Virtual Iraq, a virtual reality system for treating PTSD, deployed in multiple VA hospitals and featured on national TV.
- Conducted research and led the development of several VR projects under the Flatworld initiative, focusing on reconfigurable projection-based VR systems for decision-making training.

EDUCATION

Keldysh Institute for Applied Math, Moscow — *PhD*

Algorithms and Software for Automatic Visual Inspection Systems.

PROJECTS

Detection of Moving Trucks Activity — Deep Learning

Point Clouds Alignment — 3D Computer Vision

Touchpad TV Remote — 2013 Samsung TVs

Flatworld / Virtual Iraq — Virtual Reality Systems