

Jon Andrew Crain

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Profile

Self-motivated, creative computer scientist, software engineer, and team lead. Proven success in taking ideas all the way from prototype to production. Effective at communicating clearly, resolving ambiguity, and making plans that are simultaneously good for the product and good for the team that works on them.

Experience

Staff Software Engineer, 7-Eleven R&D; Remote **2019-present**

- Released a cashierless store prototype featured in [TechCrunch](#) and [Forbes](#) for 7-Eleven North America in the style of Amazon Go. Saved over \$100,000 in per-store set-up costs by replacing expensive tracking hardware with custom, low-cost edge devices.
- Brought a new style of [computer vision self-checkout technology](#) from functional prototype to scale-ready product, currently serving customers in five 7-Eleven stores (over 50k transactions so far). Required deep expertise with RGBD cameras, point clouds, and performance-conscious software as well as building crucial infrastructure for reacting to misdetections and retraining underlying ML models appropriately.
- Generated a number of [patents](#) for 7-Eleven.
- Designed and developed an RGBD camera library to make 2D/3D data processing simpler and more ergonomic for non-experts. Engineers are able to record and replay test data, perform multi-camera alignment, filter noise, and transform depth frames to point clouds in fewer functions with less cognitive overhead. Recording/replaying test data substantially reduced time needed to validate new features and unlocked automated integration testing as part of the merge request pipeline.
- Constructed a CI pipeline which automatically generates and publishes documentation for python codebases within R&D, allowing engineers to keep documentation up to date as part of their normal merge request process. Resulted in higher participation in writing and maintaining documentation and higher quality resources across the team.
- Well-known for advocating for coworkers and integrating their ideas into the project plan. Intentional about developing positive, trusting relationships and getting critical feedback about architecture changes and new features. Establishes priorities with team wellbeing and healthy, sustainable productivity in mind.

Education

MS in Computer Science, 2019 — University of Texas at Dallas

Thesis: On Global Minimum Cuts in Directed, Surface-embedded Graphs

BS in Computer Science, 2015 — University of Texas of the Permian Basin

Skills

For humans, ask me about...

- Stereo cameras and when they can be expected to produce reliable depth data.
- Design docs and planning at the right level of abstraction.

For bots and keyword searches...

Python, Pants, Numpy, Mypy, Pytest, Ruff, Pydantic, C++, Rust, GitLab CI, Docker, Docker Compose, AWS (especially S3, EC2, ECR, Kinesis Video Streams), Terraform, New Relic, Linux, Bash, Nvidia Jetson, Triton, Intel RealSense, OpenCV, Open3D, Kafka