Justin Bruce Van Horne

Contact Information

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Current Software Interests and Projects

rendering engines, in particular procedurally generated worlds; identifying and predicting the movement of convoys; developing a web-based GPU-driven tool for rapid analysis of large, many-dimensional datasets; identifying and recommending books from a bookshelf; small CV projects to detect interesting segments in video games and provide automatic video capture on low-cost hardware (some fun v4l hacking);

Preferred Languages

`C, C++, Python, JavaScript`

Education

B.S. in Computer Science - University of Arizona - May 2013

Start-ups as Founder or Manager

YourLabs - Edutech knowledge analytics platform.
JobKaster - Mapping solution for employers and job seekers.

Security

Active TS/SCI-cleared (last renewal 12/2017)

Publications

Alexander, J., Blake, S., Clasby, B., Jatin Shah, A., Van Horne, C., and Van Horne, J. *"Machine Vision and Autonomous Integration Into an Unmanned Aircraft System" ITC*, 2012.

Recent Experience

Rincon Research Corporation - Tucson, AZ - *Scientist / Engineer* **May 2014 – June 2018**

Multiple hats including principal investigator, software engineer, and technical lead. Development of GPU-accelerated link-propagation models for forecasting the interaction of special hardware. ML-activities for understanding movement behavior of crowds, convoys, etc. WebGL analyst tools for visualizing multi-dimensional datasets in real-time. Familiar with virtualization and container platforms such as OpenNebula and Rancher. Strong usages of `C++`, `Python`, and `C`.

Leidos - Tucson, AZ - *Software Engineer* **September 2011 – May 2014**

Wide-array of tasking as a technical lead and software lead on multiple projects. Most notably lead and re-architectured a 10-year research program into an operationally-ready platform within a 1-year schedule. Tasking had centered around writing parallel and distributed algorithms; development of an API and framework to support processing large-scale complex imagery; Mostly centered in writing scalable `Python` (`cpython` via capi) and `C++`. Strong usages of `OpenCV, NumPy, ZMQ,` and `GDAL`.

UAV Research - University of Arizona - *Software Engineer* **December 2011 - May 2013**

Integration of clustering and autonomous target recognition algorithm within an autonomous aerial vehicle. Processing centered around constructing a `ZMQ`-based pipeline with PUB-SUB and PUSH-PULL paradigms. Hardware and UAV-downlink were `C++` focused. Downlink and image process- ing were a mix of `C++` and `Python`. Work was demonstrated at the 2012 international AUVSI competition.

Select Open Source

git-issue
https://github.com/justinvh/git-issue
An issue tracker for `Git` build around `Git` in `Python`. Used for bare minimum in-repository bug tracking and resolution.

Raptr
https://github.com/justinvh/raptr
Raptr is an open-source pixel-perfect platformer. It is written in C++ with the support from various open source libraries.

llab
https://github.com/justinvh/llab
An open-source and light-weight github clone. Built around the `Git` protocol via `Dulwich` and `Django 1.7.x`. This is a recent project.

Markdown-LaTeX
https://github.com/justinvh/Markdown-LaTeX
Markdown extension to add support for inline LaTeX expressions. Utilizes output from dvipng to create base64-encoded inline images suitable for archiving or presentation purposes.