# JAKUB WLODEK

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## EDUCATION

**Stony Brook University** *Spring 2019 - Present (Expected Graduation May 2020)*
M.S. Computer Science GPA: 3.92/4.00

**Stony Brook University** *Fall 2015 - Spring 2019*
B.S. Computer Science GPA: 3.79/4.00
B.S. Applied Mathematics
Minor in United States History

## EXPERIENCE

**Brookhaven National Laboratory JR. Controls Engineer** *Fall 2018 - Present*

- Responsible for developing software and hardware solutions for scientists while adhering to strong design principles including testing, documentation, version control, and production release.
- Worked as a member of the areaDetector deployment initiative, constructing a python utility for downloading, building, and packaging areaDetector via either a command line or graphical interface. Extended this utility to utilize Docker containers and modern CI/CD solutions to optimize delivery of areaDetector binaries and IOCs to beamline IOC servers.
- Worked as a member of the CI/CD improvement intiative group to discuss with IT and other developers to finalize a plan for improved CI/CD capabilities for the facility.
- Worked on EPICS and areaDetector projects collaboratively with both coworkers and peers from around the world. Was added as a core developer for the areaDetector project, contributing several new drivers and plugins as well as bug fixes and documentation.
- Developed drivers to add EPICS support for several camera and motion controller models, and deployed these drivers along with the paired hardware on the beamlines. Also deployed and debugged existing drivers written by others on both Linux and Windows servers.
- Used data collection interfaces such as bluesky and spec to test equipment on beamlines and to aid scientists.

**Brookhaven National Laboratory SULI/SURP Intern** *Summer 2017 - Summer 2018*

- Developed a python utility for allowing for three-dimensional reconstruction from images taken from a fixed-lens microscope that resulted in three co-authored publications.
- Helped resolve issues with a driver for a high speed X-Ray detector, and deployed the fixes and the device onto the beamline.
- Used scripting to automate several portions of the EPICS deployment chain.

**Suffolk Community College Educational Opportunity Tutor** *Fall 2015 - Spring 2018*

- Worked as a mathematics and science tutor for students who were part of the Educational Opportunity Program(EOP) at SCCC
- Tutored mathematics for students at varying levels ranging from introductory mathematics to calculus and beyond.

## SKILLS

**Object-Oriented, Test-Driven Software Development** *1-4 years*

- **Languages:** Python, C, C++, Java, JavaScript, HTML/CSS
- **Database Solutions:** MySQL
- **Build Tools:** CMake, GNUMake, Compilers (clang, gcc, msvc etc.)
- **Web Technologies:** React, Bootstrap, JQuery, JDBC, JPA, jsp, Apache

**Software Version Control Source Code Management** *4 years*

- Git, Mercurial, Github, Gitlab
- Experienced with the fork-pull request model for versioned software development.
- Experienced with both the command line and graphical interfaces for version control.

**Cross-Platform Development** *3 years*

- **Linux:** Experienced with both Debian and RedHat based distributions.
- **Windows:** Experienced developing for windows native and MinGW

**EPICS / Scientific Computing Software** *3 years*

- **EPICS Experience:** areaDetector, epics-base, IOC development, driver development, build systems, motion control
- **Data Acquisition:** BlueSky, Control Systems Studio, MEDM

**Modern Computing Technologies**

- **CI/CD:** Docker, Travis-CI, Github Actions, Jenkins, Crontab
- **Cloud Computing:** Amazon Web Services, Google Cloud
- **Computer Vision:** OpenCV, OpenGL

**Non-Technical Skills**

- Ability to work in a team oriented environment through version control and strong communication.
- Ability to work independently on projects with only overarching supervision.
- Effective time management, ability to complete tasks rapidly.
- Strong written and verbal skills, familiar with aspects of strong in-code and external documentation.

## PROJECTS

**areaDetector Deployment Initiative** *2018 - Present*

- Constructed a python utility for downloading, building, and packaging areaDetector via either a command line or graphical interface.
- Constructed series of Docker-based tools for utilizing the build utility to automate the process of deploying compiled areaDetector binaries to beamlines with the help of CI/CD.
- Worked with developers from other institutions to aim to standardize EPICS module build system structure.

**ADUVC areaDetector USB Camera Driver** *2018 - Present*

- Wrote a new areaDetector driver that allows for use of USB Video Class (UVC) devices in EPICS environments.
- Deployed driver on several (3) beamlines. Currently 10 devices on the 17BM beamline, and 1 each on 10ID and 6BM.
- Driver will likely be made a part of the areaDetector upstream repository.

**ADCompVision / ADPluginBar areaDetector Plugins** *2018 - Present*

- Plugins for adding Computer Vision, Video-Record ability, and barcode scanning to areaDetector.
- Used at several beamlines (17BM - Video Record, 08ID - Barcode Scanning etc.)
- Integrated into the core areaDetector project.

**pyautogit** *2019 - Present*

- A python and ncurses based command line client for managing multiple git repositories at once, with an all-ASCII based user interface.
- Support for most git features, including branches, push/pull, cloning, logs, diffs, adds, commits, and merge conflict handling.

**SAVJ-Canvassing** *2018*

- Political canvassing web application built for my senior software engineering course at Stony Brook.
- Utilized JPA, an Apache Server, MySQL, and AWS for the site hosting and back end.
- Created front end with bootstrap, javascript, jsp pages, and Java servlets.

## ACCOMPLISHMENTS

### Publications

- *Achieving 3D imaging through focus stacking* - 2018, first author
- *Using sound pulses to solve the crystal-harvesting bottleneck* - 2019, sixth author
- *ADUVC -An EPICS areaDetector driver for USB Video Class devices* - preprint, 2019, first author
- *On-Axis 3D microscope for x-ray beamlines at NSLS-II* - 2017, second author

### Honor Societies / Memberships

- Stony Brook Computer Science Honors Program
- Stony Brook University Scholars
- Phi Beta Kappa National Honor Society

### Awards

- Stony Brook University Deans List (2015 - Present)
- NSLS2 Python Programming Challenge Winner July 2019
- Eagle Scout Award

## REFERENCES

References available upon request. Please contact me at the above email or phone number.