IGOR BANIN

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Education

University of Washington, Seattle **Graduated : 06/2021**

Bachelor of Science in Applied Physics

- Completed Computer Science Coursework : Data Structures & Algorithms, Scientific Computing, R programming, Digital Circuits & Systems, Web Programming, Data Analysis, Data Science, Systems, Algorithms & Computational Complexity

Experience

Software Engineer Intern 09/2020 – 03/2021 *Intel IAGS - CXPS - Client Platforms Enabling, Redmond, WA*

- **Prototype Hardware Acceleration Proof of Concept (C++)**
  Created a testing framework to test new form of hardware acceleration.
  Integrated two sets of vector instruction matrix multiply, Mandel Brot and average float tests into the testing framework.
  Implemented multithreading using both process threads API and mutex, lockguard features.
  Developed a test plan to evaluate the performance of the CMX architecture.
  Enabled testing framework on Linux using a wine interpretation layer.
  Enabled and ran tests in the Simics OS virtualization environment.
  Prepared executive summary of CMX architecture functionality and testing framework design.

- **Personalizer AI Proof of Concept (Python, JavaScript)**
  Enabled successful Keras to ONNX model conversion for personalizer AI.
  Tested the generated model in WinMLRunner, and profiled models in OpenVINO.
  Analyzed ONNX model runtime data, presented findings to major ISV partners.

- **Task Automation (PowerShell, Batch, VBA)**
  Improved productivity of Excel workload testing cycle by collecting CPU information to dynamically automate testing parameters.
  Added functionality in VBA to read in number of iterations as a CLI command to reduce memory load of different tests.

Undergrad Physics Research 01/2021 – 06/2021 *NOMR – Novel Observations in Mixed Reality, Seattle, WA*

- Created a proof-of-concept Optics lab in Unity using C#.
- Maintained and updated a research project codebase to simulate Physics labs in the VR space using Oculus hardware.
- Designed and implemented a ray object as part of designing and building an Optics lab.
- Programmed functionality of how rays function, and interactions with lenses and other optics equipment.

Programming and Robotics Instructor 05/2017 – 02/2020 *Step Computer Academy, Redmond, WA*

- Taught classes of up to 12 students introductory programming in Python, Objective C and web development.
- Graded and administered exams in Python and Computer Fundamentals.
- Designed robotics curriculums for summer camp in Arduino and LEGO Mindstorms.
- Worked with Raspberry Pi camera sensor programming in Python.

Projects

Time Laser(Arduino/Objective C)

- Utilized the Arduino UNO microcontroller, servos, and UV laser to design and build a laser drawing time display.
- Created a testing program to deserialize servo byte data into a C queue, to understand servo angle.
- Created an executable program to draw the current time into 24hr time format using vector graphics.

Search Engine Sorting (Java)

- Implemented TF,IDF, and Page Rank algorithms to sort the relevance of search engine results. Created comprehensive functionality tests for implemented methods and datastructures.

Maze Solver (Java)

- Using Kruskal's algorithm, implemented methods to find the minimum spanning tree of a graph to create random but solvable mazes.
- Implemented Dijkstra's to efficiently solve created mazes, as well as functionality tests for methods listed.

Higgs Boson Discovery (Python)

- Utilized simulated data from the Large Hadron Collider to graph and sensibly explain what kind of data the LHC collects.
- Graphed and analyzed 100k jets from the Higgs signal and QCD background data sets; used data of transverse momentum, jet pseudo rapidity, azimuthal angle, etc. to identify probability of 5-sigma events (seeing a Higgs Boson).

Link Lives (Python)

- Attended DubHacks 2017 and worked in a team to build a link shortening service that donates 100% of ad revenue to Nothing but Nets.
- Created a Reddit bot through PRAW to distribute the link shortening service on keyword identification.

Skills

Languages: Java, Python, C++, C#, PowerShell, Batch Script, VBA, MatLab, JavaScript, R, Objective C, HTML, CSS, Verilog
Other: GitHub, GitLab, Version Control, TensorFlow, Unity, Oculus Rift, Tkinter, WordPress, Windows, macOS, Linux, CCNA/CCNP certified
IDE: Visual Studio, VSCode

Extracurricular

Greater Seattle Cares 06/2019

- Volunteered as web master for Greater Seattle Cares, updated their website and setup backups.

University of Washington Boxing Team 2017

Hobbies: Weightlifting, Running, Basketball, Travel
Languages: English and Russian