Johan Sebastian Ospina Buitrago

Research & Development Engineer

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Experience

MARKFORGED | Research and Development Engineer - Software III

Oct 2022 – Present | Boston, MA

- ➔ Worked on taking developing new features and technologies into the Markforged Tech Stack

PTC - VUFORIA | Senior Prototyping Engineer

June 2021 – Sep 2022 | Boston, MA

- ➔ Validation Team
  - – Manipulated a **graph** data structure that was used to represent 3D locations as well as contextual data (proprietary take on Spatial Digital Twins) using **mobile** and **web** front ends
  - – Implemented on demand rendering system for the point cloud viewer used by PTC's products
- ➔ Vuforia Model Target Generator (MTG) and Area Target Generator (ATG)
  - – Drove technical debt efforts and architectural reworks of the entire MTG and ATG codebases. I also configured linters, formatters, and other build tools to passively improve developers' skills
  - – Developed 3D (**ThreeJS**) gizmos and logic to use for the Vuforia SDK 10.10 User Volume feature. This led to me spearheading the effort to integrate with bare bones existing libraries to have a set of **reusable** web and 3D component libraries that multiple teams across the company could use

WAYFAIR | R & D Software Engineer II

July 2016 – March 2019 | Boston, MA

- ➔ Ideated on and developed experiences with emerging technology ranging from short-term prototypes for internal stakeholders to researching longer-term initiatives. Usually this meant organizing my own work and executing on it without much external supervision.
- ➔ Focused mostly on Augmented Reality, 3D, or similar experiences.
  - – published **Doll House Projection Mapping project** at CHI EA '20
  - – View In Room 3D for iOS and Android
  - – Wayfair Magic Leap launch experience for Helio Browser

PRINCETON UNIVERSITY | Research Assistant

Dec 2019 – May 2021 | Princeton, NJ

- ➔ Created a pipeline to gather crowdsourced image correspondence data from users distributed throughout the world to create a dataset of high quality optical flow annotations.
- ➔ Created a **software pipeline** to reproduce a **research paper** on calculating camera intrinsic parameters using image correspondences and projective geometry

Skills

PROGRAMMING

Proficient:
C# • JavaScript • TypeScript • Python • CSS • HTML •

Experienced:
Python • LaTeX •

Familiar:
Java • Shell • C++ • Swift

LIBRARIES/FRAMEWORKS

Angular • Node.js • React • LitElement • Eslint • Redux • Mocha • Chai

TOOLS/PLATFORMS

Git • Github • VSCode • Unix • Pytorch • Numpy • Unity

CONCEPTS

Optimization Techniques • Linear Algebra • Machine Learning •
Neural Networks • Computer Vision • Computer Graphics

LANGUAGES

Spanish • French • German

Education

PRINCETON UNIVERSITY

Master's of Science in Computer Science

Sep 2019 - May 2021 | Princeton, NJ
Cum. GPA: 3.72 / 4.0

BOSTON UNIVERSITY

Bachelor's of Science in Computer Engineering

Sep 2013 - May 2017 | Boston, MA
Magna Cum Laude
Cum. GPA: 3.65 / 4.0