Johan Ospina

Engineer looking for opportunities to work on challenging problems with a research lens

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Education

M.S.E Computer Science / Princeton University
Sept 2019 - May 2021

GPA: 3.72 – *Teaching Assistant, Fully Funded GEM University Fellow*

- *Focus on 3D Computer Vision, Graphics, and Their Applications*

B.S Computer Engineering / Boston University
Sept 2013 - May 2017

GPA: 3.65 – *Magna Cum Laude, Research Assistant, Teaching Assistant, Academic Conduct Committee*

- Featured by ECE Department for acquiring ***Microsoft Garage*** as Senior Design Project Client.

Skills

- **Languages:** C++, C#, Javascript, Python, CSS, HTML, Bash, GLSL, Swift, PHP, LaTeX
- **Technologies:** Unity, 3ds Max, Git, Photoshop, ReactJS, BabylonJS, OpenCV, ArUco Markers, XCode, Scenekit
- **Math and Algorithms:** Optimization Techniques, Randomized Algorithms, Linear Algebra, Linear Programming.
- **Domain Knowledge**
  - **Interactive / Visualization:** Mixed Reality, Computer Vision, Computer Graphics, 3D Printing, Machine Learning, Neural Networks.
  - **Electronics:** Microcontrollers, Soldering, Simple Logic Design

Work Experience

R & D Software Engineer II / Wayfair LLC
June 2017 – Aug 2019

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.

- Projects:
  - Wayfair AR View in Room 3D
    - Interfaced mobile apps with 3D model database as well as wrote logic to place 3D models within Augmented Reality experience.
  - Real-time Material Conversion Pipeline
    - Took loosely defined requirements for V-Ray to PBR material conversion and updated 3ds Max scripts to increase accuracy of previous Material Conversions
  - Dollhouse Projection Mapping System
    - Led the creation of a self-contained projection mapping system that allowed users to move dollhouse size pieces of 3D printed furniture while optically tracking and projecting their patterns accordingly.
    - **Published at CHI EA '20:** https://dl.acm.org/doi/10.1145/3334480.3383180
  - Magic Leap Wayfair AR Web Experience
    - Wrote and Styled a ReactJS Web App shown in Mixed Reality

Research Assistant / Princeton University: Visual Learning Lab
Dec 2019 – Present

- Worked on Structure From Motion Problems with a Machine Learning Lens. Used statistical methods to improve accuracy of image matches.
- Created UI to allow users to mark their own images and derive the camera intrinsic parameters for each view. Implemented Self Calibration algorithms from scratch in Python.

Research Assistant / Boston University: CIDAR Lab
Sept 2015 – May 2017

- Phagebook Alpha: Presented Poster at IWBDA 2016
  - Wrote backend code for lab management tools aimed for synthetic biologists.
- Neptune: Microfluidic Design Tools for the Masses
  - Wrote firmware and set the program architecture for our Gold Medal iGEM 2016 Winning project

Teaching Experience

Teaching Assistant / Princeton University
Sept 2019 – Present

- COS 126: introduction to computer science
  - Taught unsupervised and prepared materials, graded assignments

Teaching Assistant / Boston University
Sept 2015 – May 2017

- EK 100: First year course for Incoming Engineers
  - Led classes of 10+ students and prepared materials.
- EC 311: Introduction to Logic Design
  - Graded homework and helped answer questions during lab sections
- EC 327: Introduction to Software Engineering
  - Prepared materials for lab sections as well as graded programming assignments.

Activities & Honors & Extras

- Grand Prize at MIT Reality Virtually Hack 2017
- Gold Edison Award for Wayfair AR feature
- Best Machine Learning Hack at Wayfair Hacks
- Work Published at CHI EA '20 conference
- Work Showcased at L.E.A.P 2018
- GEM University Fellow
- Workshop Speaker at BU/MIT/Wayfair
- Project Presented at PAPIs 2018
- **Languages:** French, Spanish