Résumé

RYAN BRANCH

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EMPLOYMENT

Product Engineer **May 2020 – Present**
Photon Semantics (Startup founded from Kotov Lab at UM) **Ann Arbor, MI**

- Developing both software and hardware for research in improving LIDAR vision

Automation & Controls Engineer **July 2018 – May 2020**
Eli Lilly and Company – Global Process Automation & Control Engineering **Indianapolis, IN**

- Deployed and managed computer systems for control and monitoring in manufacturing environments

Undergraduate Researcher – Kotov Group **January 2017 – July 2018**
University of Michigan Department of Chemical Engineering **Ann Arbor, MI**

- Patented, as a team of 8 inventors, a novel method for LIDAR-based computer vision
- Co-founded "Photon Semantics" and directly assisted in raising $760,000 of funding

Research Intern – Stroock Group **June 2016 – August 2016**
Cornell NanoScale Science & Technology Facility **Ithaca, NY**

- Authored a process to fabricate resin micro-rings of targeted cross-sectional geometry

Undergraduate Researcher – Larson Group **September 2015 – February 2016**
University of Michigan Department of Chemical Engineering **Ann Arbor, MI**

- Published a paper quantifying the kinetics of Layer-by-Layer Deposition in polymers

EDUCATION

University of Michigan **September 2014 - April 2018**
B.S.E. in Chemical Engineering, Minor in Computer Science **3.54/4.00 GPA**

MAJOR PUBLICATIONS AND PATENTS

1. Maziar Mohammadi, Ali Salehi, **Ryan J. Branch**, Lucas J. Cygan, Cagri G. Besirli, Ronald G. Larson. "Growth Kinetics in Layer-by-Layer Assemblies of Organic Nanoparticles and Polyelectrolytes." (2017). ***ChemPhysChem*** 18(1): 128-141.
2. Kotov, Nicholas A.; Glotzer, Sharon; Shahbazian, Brian; **Branch, Ryan**; Xu, Lizhi; Choi, Wonjin; Cha, Minjeong; Spellings, Matthew. "Material-Sensing Light Imaging, Detection, and Ranging (LIDAR) Systems". July 2019. WIPO Patent WO2019139656.

PROGRAMMING AND TECHNICAL SKILLS

- **Languages**: Highly skilled in Python and strong in C/C++/C#. Some experience with MATLAB. Also proficient with HTML/CSS along with Django, Jekyll, and Unity. Python library experience includes Pandas, NumPy, Numba, SciPy, Scikit-Learn, Tensorflow, PIL, Matplotlib, Tkinter, and PyOpenGL.
- **GitHub:** Over 40,000 lines of net contributions, a majority of which are open-source. Topics include image processing, physics simulations, automation, mechatronics, data mining, 3D graphics, and GUIs.
- **Prototyping:** 3.5 years of experience in CAD (OpenSCAD & OnShape) and 3D printing (FDM).
- **Electronics:** 1.5 years in developing custom Arduino-controlled mechatronic systems.