Résumé

RYAN BRANCH

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EMPLOYMENT

Freelance Software Engineer **Aug 2020 – Present**

- Consulting and writing custom software, especially data processing pipelines and data analysis tools
- Serving as the lead engineer for a cutting-edge robotics project carried out by a Fortune-100 company
- Contributing to open-source software in decentralized finance, both for profit and as a volunteer
- Creating a decentralized SaaS business for trustless distribution of data via blockchain

Product Engineer **May 2020 – April 2021**

Photon Semantics (Startup founded from Kotov Lab at UM) **Ann Arbor, MI**

- Developed custom data processing software for research in improving LIDAR sensor accuracy

Automation & Controls Engineer **July 2018 – May 2020**

Eli Lilly & Company – Global Process Automation & Control Engineering **Indianapolis, IN**

- Deployed and managed software systems for automation of manufacturing environments

Undergraduate Researcher – Kotov Lab **January 2017 – July 2018**

University of Michigan Department of Chemical Engineering **Ann Arbor, MI**

- Patented a novel method for LIDAR-based computer vision, and co-founded "Photon Semantics"

Research Intern – Stroock Lab **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 Lab **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. M. Mohammadi, A Salehi, **R. Branch**, L.J. Cygan, C.G. Besirli, R.G. Larson. "Growth Kinetics in LbL Assemblies of Organic Nanoparticles and Polyelectrolytes." (2017). ***ChemPhysChem*** 18(1): 128-141.
2. N.A. Kotov; S. Glotzer; B. Shahbazian; **R. Branch**; L. Xu; W. Choi; M. Cha; M. Spellings. "Material-Sensing Light Imaging, Detection, and Ranging (LIDAR) Systems". April 2021. US Patent 10983219.

PROGRAMMING AND TECHNICAL SKILLS

- **Languages**: Highly skilled in Python and strong in C/C++/C#. Also proficient with JS and HTML/CSS along with Django, Jekyll, and Unity. Smart contract skills are focused on Tezos (SmartPy/Michelson).
- **GitHub:** Over 50,000 lines of net contributions, a majority of which are open-source. Topics include computer vision, physics simulations, data mining, generative art, smart contracts, and DApps.
- **Prototyping:** 4 years in CAD (OpenSCAD / OnShape), 3D printing (FDM), and mechatronic design.