

# Harrison R. Griffin

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OBJECTIVE	Highly motivated fullstack software developer with a background in physics and a passion for problem solving. Seeking intermediate software developer positions.
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PROFESSIONAL EXPERIENCE	<b>Fullstack Software Developer</b> Sonder, Montreal, Qc, CANADA	November 2021–Present
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Fullstack developer at Sonder (a tech-forward hospitality company) in the Marketplace Core team. We are primarily responsible for managing and optimizing resource allocation to maximize availability which is key to business operations. Supporting and bulding features in key microservices.

- Optimizations of room allocation and availability.
  - Optimize shuffling bookings that increase inventory availability across an entire calendar. Improve speed by 4:1, increase confidence levels in service.
  - Optimize one-off booking allocation. Increase speed by 20:1 while also being more accurate and better tested.
- Individual Contributor to corporate bookings tool.
  - Implement majority of the frontend service (React/Typescript) and user flows with extensive unit and integration testing.
  - Work on legacy Ruby on Rails backend.
  - Communicate with stakeholders and designers.
- Other notable work.
  - Implement new and improve existing apis for inter and intra team use.
  - Build auditing tools to ensure health and validity of our data.
  - Actively participate in reviewing pull requests and sprint planning.
- Tech/Stack: Typescript, Python, React, MaterialUI, Ruby on Rails, Node, GraphQL, Pandas, Numpy, Kubernetes, Docker, Cypress, CircleCI, Git, Asana.

<b>Software Developer</b> Plotly, Montreal, Qc, CANADA	March 2020–May 2021
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- Individual Contributor in team implementing live metrics/monitoring into enterprise platform.
  - React, Python, Docker, GraphQL, Postgres, UI/UX.
- Release Manager and Individual Contributor for Dash open source repos.
  - Dash, Dash-Renderer, Dash-Core-Components, Dash-HTML-Components, Dash-Table.
- Champion of Dash Embedded enterprise feature.
  - Interact with customers to develop specific requested features.
  - Troubleshoot issues with customer success team.
  - Review pull requests in feature repo.

**Darkfield Microscopy and SEM Defect Engineer** April 2017–Jan 2018  
GLOBALFOUNDRIES, Malta, NY, USA

- Train and manage machine learning algorithms and recipes for automatic defect image-based classification.
- Formulate effective inline defect inspection techniques and recipes on darkfield microscopy and SEM tools.
- Work with Process Integration and Advance Module Engineering teams to improve capture rate of defects of interest.
- Improve speed and efficiency of existing recipes to increase throughput of wafers through the process line.

EDUCATION

**MSc, Physics**, McGill University, Montreal, Qc, Canada **Feb 2018–Feb 2020**

G.P.A.: **4.00**/4.00

Thesis Topic: *Study of Single Electron Redox Reactions in Individual Ferrocene Molecules with Electrostatic Force Microscopy*

Thesis Advisor: Dr. Peter Grutter

**BSc, Physics**, Union College, Schenectady, NY, USA **Sep 2012–June 2016**

G.P.A.: **3.84**/4.00

Summa Cum Laude, with Honors in Physics

Minor: Mathematics

Thesis Topic: *Heat of Fusion of Primary Alcohol Confined in Nanopores*

Thesis Advisor: Dr. Samuel Amanuel

RESEARCH  
EXPERIENCE

**Single Electron Spectroscopy in Ferrocene Molecules** Feb 2018–Feb 2020  
Grutter Research Group, McGill University, Montreal, QC, Canada

- Experiments run on home built low temperature atomic force microscope (AFM).
- Convert home built low temperature atomic force microscope (AFM) to fully open source instrumentation in both software and hardware, including scanner controller and DSPs.
- Implement optical excitation of AFM cantilever ("blue drive"), including design, electronics, and instrumentation.
- Synthesize samples with self assembled monolayers with functionalized ferrocene heads for experiments.
- Develop python model for simulating single electron charging events, and perform forward modeling machine learning.
- Present results at NC-AFM 2018 and NC-AFM 2019.
- Published Manuscript:
  - Miyahara, Y., Griffin, H., Roy-Gobeil, A. et al. *Optical excitation of atomic force microscopy cantilever for accurate spectroscopic measurements. EPJ Techn Instrum* 7, 2 (2020).

**Strain Engineering Graphene Transistors** Aug 2016–Jan 2017  
Champagne Research Group, Concordia University, Montreal, QC, Canada

- Build Mathematica model to simulate varying strain.
- Microfabrication of monolayer suspended graphene channels via photolithography, e-beam lithography, thermal evaporation, RIE, wet etching.
- Characterize devices via optical microscope, tilted SEM, Raman Spectroscopy.

- Wire bond and package devices for measurement in He-3 cryostat. magnetic field on suspended graphene devices.

#### UNDERGRADUATE RESEARCH EXPERIENCE

##### **Phase Transitions of Nano-Confined 1-Decanol** June 2015–June 2016

Department of Physics, Union College, Schenectady, NY, USA

- Prepare samples of silica nanopores filled with 1-Decanol.
- Precisely heat and cool sample via Differential Scanning Calorimeter to measure energy of phase transitions.
- Explore and understand the effects of nanoscale confinement and overnormalization of Heat of Fusion.
- Present results at American Physical Society March Meeting.

##### **Fabrication of Self Ordering Alumin Oxide Nanopores**

Summer 2015

Department of Physics, Union College, Schenectady, NY, USA

- Prepare samples of pure aluminum via mechanical polishing, electropolishing, and thermal annealing.
- Anodize aluminum to create self-ordered array of AAO nanopores with diameters of 200-300 nm.
- Characterize pores via SEM and AFM.
- Present results at Union College Summer Research Series.

##### **Developing Optical Tweezers**

Summer 2014

Department of Physics, Union College, Schenectady, NY, USA

- Machined aluminum parts and aligned optical components.
- Successfully trapped 0.5 and  $1\mu m$  polystyrene beads.
- Created programs using MATLAB to control piezoelectric stage to move particles at precise velocities in different patterns.
- Present results at Union College Summer Research Series.

#### TECHNOLOGY STACK

**Languages**—Typescript, Javascript, Python, Ruby, Node, GraphQL, Pandas, Numpy, HTML, CSS.

**Frameworks/Testing**—React, MaterialUI, Ruby on Rails, Cypress, Selenium.

**Tools/Tech**—Docker, Kubernetes, GNU/Linux, git, bash, GitHub workflows, CI/CD, CircleCI, Asana.

#### TEACHING EXPERIENCE

##### **3D Printing Lab Manager**, McGill University

Fall 2016

Assemble and maintain printers, design space for lab, build and maintain website ([p3dl.github.io](https://p3dl.github.io)), teach workshops for undergraduates, host weekly meetings.

##### **Teaching Assistant**, Concoridia University

Fall 2016

PHYS 252, Optics

##### **Teaching Assistant**, Union College

Fall 2013–Spring 2016

PHY 120, Matter in Motion

PHY 121, Principles of Electromagnetics

SCIENTIFIC  
TECHNIQUES

**Characterization**—Atomic Force Microscopy, Kelvin Probe Microscopy, Electron Microscopy, Raman Spectroscopy, Cyclic Voltometry.

**Microfabrication**—Photolithography, E-Beam Lithography, Reactive Ion Etching, Wet Bench, Wire Bonder, Thermal Evaporator.

**3D Printing**—Fused Filament, Stereolithography, CAD.

HONORS

Sigma Pi Sigma (Physics Honor Society), Sigma Xi (Scientific Research Honor Society), Dean's List, Eagle Scout, High School Valedictorian.

LANGUAGES

English—**Native**; French—**A1**; Norwegian—**A1**