Duncan Joly

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Objective

- Motivated, accomplished leader with experience in spacecraft communications and industry/academic collaboration seeking a summer internship in computer science

Education

Bachelor of Science in Computer Science   Expected Fall 2025

College of Science and Engineering, University of Minnesota - Twin Cities, Minneapolis, MN
- Related coursework: Python, C, algorithms and data structures, computer networks, linear algebra, machine architecture, program design
- College of Science and Engineering Dean's List Fall 2024, 3.57 overall GPA

Select Work Experience

Communications Subteam Leader - *U of MN Small Satellite Research Laboratory - Minneapolis, MN*   February 2024 - Present
- Implemented data transfer between spacecraft and ground station network using UDP packets in GNURadio
- Worked with industry and governmental space communications experts to insure reliability of all software interfaces
- Managed communications team of 8, including undergraduate volunteers, satellite project managers, and former NASA employees
- Designed and implemented persistent Point-to-Point Protocol link over RS-232/UART using pppd and systemd

Undergraduate Research Fellow - *U of MN Networking Research Group - Minneapolis, MN*   February 2023 - Present
- Implemented pathway for live parameter customization in simulated 5G network using Eurecom's OpenAirInterface and FlexRIC
- Conducted networking efficiency research project using Python, published findings on arXiv (*arXiv.2311.10936*)
- Contributed to the Linux kernel and open-source research software platforms including OpenAirInterface and FlexRIC
- Assisted Ph.D. students with data analysis, software engineering, and system configuration for academic research papers
- Accepted National Science Foundation "Research Experiences for Undergraduates" grant to continue research
- Developed technical research skills including literature reviews, project management, professional teamwork, and data analysis

Student A/V Technician - *University of Minnesota - Minneapolis, MN*   September 2022 - Present
- Operated audio/visual equipment for events on campus, including research presentations, remote conferences, and film nights
- Assisted with equipment setup and operation and provided troubleshooting assistance to various clients

Leadership and Volunteer Experience

Spoke Maintainer, National Tech Committee Member - *Democratic Socialists of America - Minneapolis, MN*   July 2021 - Present
- Designed, drafted, and implemented vetting process at the national level of the organization for future volunteers
- Maintained chapter Spoke deployment (mass-texting service) which contained contact information for over 1200 members

Leader - *Hack Club - Roseville, MN*   September 2021 - June 2022
- Designed curriculum for and provided support to 20-member chapter of Hack Club
- Instructed members on penetration testing techniques, including Kali Linux and Aircrack-ng, and use of GitHub and VS Code
- Created practice problems and example projects for members in Python and Java

Social Media/Tech Leader, Leadership Committee Member - *RAHS Progressives - Roseville, MN*   Summer 2021 - Spring 2022
- Facilitated meetings with group members and local government officials, planned events, and recruited over 10 members
- Managed several social media pages and a website, along with online resources such as Slack and Google Suite
- Educated fellow high school students on politics and community opportunities in the Roseville and Minneapolis, MN areas

Founding Member, Policy Review Group Leader - *ISD#623 LGBTQ+ Equity Committee - Roseville, MN*   Spring 2021 - Spring 2022
- Created and participated in committee focused on LGBTQ+ inclusion in district schools
- Facilitated partnership between teachers, school board members, and district administration to draft inclusion policy

Skills and Interests

- **Technical**: 5G, amateur radio (Amateur Extra-class operator), bash, CLion, Git, GitHub, Google Workspace, high-frequency (HF) communication techniques, IntelliJ IDEA, Microsoft Office, Microsoft Windows, network architecture, OpenAirInterface, Postman, PyCharm, software engineering, space communications, TCP/IP, UDP, Wireshark
- **Programming languages**: C, Java, Python 3
- **Foreign languages**: Modern Standard Arabic (Intermediate level), French (Intermediate level)
- **Professional associations**: Association for Computing Machinery (ACM), ACM SIGCOMM, ACM SIGMOBILE, Institute of Electrical and Electronics Engineers (IEEE), IEEE ComSoc
- **Interests**: Human rights, network & data security, RF, sustainability, trust establishment, wired & wireless (esp. 5G) telecommunications