Duncan Joly

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Education

Bachelor of Science in Computer Science   Expected Fall 2025
College of Science and Engineering and College of Liberal Arts, University of Minnesota - Twin Cities, Minneapolis, MN
- Related coursework: Python, Java, advanced programming principles, computer networks, linear algebra, machine architecture
- 3.57 GPA

Skills

- **Technical**: 5G (Qualcomm *5G for Everyone* certification), amateur radio (General Class Amateur Operator), bash, CLion, Git, GitHub, Google Workspace, IntelliJ IDEA, Microsoft Office, Microsoft Windows, network architecture, OpenAirInterface, Postman (API Fundamentals Student Expert certification), PyCharm, software engineering, TCP/IP, UDP/IP
- **Programming languages:** Python, Java, C++
- **Foreign language**: Modern Standard Arabic (Intermediate level), French (Intermediate level)
- **References:** Available upon request
- **Professional associations**: Association for Computing Machinery (ACM), Institute of Electrical and Electronics Engineers (IEEE)
- **Certifications:** Visible at cs.umn.edu/~joly0012

Objectives and Interests

- Human rights, network & data security, RF, sustainability, trust establishment, wired & wireless (esp. 5G) telecommunications

Select Work Experience

U of MN Small Satellite Research Laboratory - Minneapolis, MN - *Communications Subteam Leader*   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

U of MN Networking Research Group - Minneapolis, MN - *Undergraduate Research Fellow*   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

University of Minnesota - Minneapolis, MN - *Student A/V Tech*   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

Hack Club - Roseville, MN - *Leader*   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
- Collaborated with national organization leadership and school staff to ensure best experience for members

Democratic Socialists of America - Minneapolis, MN - *Spoke Maintainer, National Tech Committee member*   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

RAHS Progressives - Roseville, MN - *Leadership Committee, Social Media/Tech Leader*   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

ISD#623 LGBTQ+ Equity Committee - Roseville, MN - *Founding Member, Policy Review Group Leader*   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