

# Joyi Xue

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## HIGHLIGHTS

- Proficient in Python, C++, Java; experience in competitive programming and data analysis
  - Excels in teamwork and independent work; detail-oriented and organized
  - Adaptable and quick learner, eager to explore new concepts and technologies
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## PROJECTS

2024 Canadian High School Big Data Challenge

[From Pixels to Protection: Artificial Intelligence in Species Identification for Biodiversity Conservation](#)

- Built and fine-tuned two AI models (ResNet-18 transfer learning vs. custom CNN) with Python, TensorFlow, and PyTorch, achieving over 90% accuracy in species classification
- Enhanced model stability by implementing data augmentation techniques, including rotation and flipping, resulting in a 10% increase in overall classification accuracy for species recognition tasks
- Engineered data processing workflows using Pandas and NumPy, optimizing the analysis of over 13,000 images to ensure efficient visualization with Matplotlib for key project insights

2023 Canadian High School Big Data Challenge

[Greenhouse Gas Emission Induced Thawing Permafrost and its Effects on Housing Safety](#)

- Collected and standardized greenhouse gas emissions data and permafrost temperatures from 26 boreholes located globally, using Python, scikit-learn, and seaborn for data analysis
  - Analyzed the impact of 3 emission pathways, providing actionable insights for climate research teams
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## HACKATHONS

*Hack the North @ University of Waterloo*

*Sep 2024*

- Built a facial detection system with OpenCV and MediaPipe, achieving 95% accuracy, and integrated synchronized audio recording via PyAudio.
- Implemented ML-based conversation summarization using Cohere for real-time AR applications

*Hack the Valley 8 @ University of Toronto*

*Oct 2023*

- Developed front-end of eco-friendly carpooling app using HTML, CSS, and JavaScript with 5 dynamic pages

*Hack the Valley 7 @ University of Toronto*

*Oct 2022*

- Built front-end of a gamified exercise website using HTML, CSS, JavaScript, and JSX in 36 hours
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## EXPERIENCE

*Python Teaching Assistant — Explorer Robotics Club, Whitby, ON*

*Jul 2021 – Apr 2022*

- Led group coding projects, managed club events, and tutored 12+ students in one-on-one Python lessons

*Ski Instructor — Dagmar Ski Resort, Uxbridge, ON*

*Dec 2021 – Mar 2024*

- Collaborated effectively with managers, program assistants, and lift operators to ensure a seamless experience for guests
- Enhanced students' skiing techniques and confidence, promoting safety and fun on the slopes

*Youth in Policing Team Member — Durham Regional Police, Whitby, ON*

*Nov 2021 – Mar 2022*

- Co-organized the 2022 IMPACT Youth Forum with 1,750+ attendees and raised \$15,000+ for local charities
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## AWARDS

- 2024 Canadian High School Big Data Challenge Winner
- 2023 Canadian High School Big Data Challenge Finalist
- 2024 Senior Canadian Computing Contest Honour Roll (Top 6%)
- 2024 Bayer Canada Scholarship – \$14,000
- Howard Ferguson Scholarship @ University of Toronto – \$12,000

Additional Scholarship Offers:

- Schulich Leader Scholarship @ Western University – \$100,000
  - Schulich Leader Scholarship @ McMaster University – \$100,000
  - President's Scholar of Excellence @ University of Toronto Scarborough – \$15,000
  - Faculty of Mathematics Entrance Scholarship @ University of Waterloo – \$10,000
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**SKILLS:** C++, Python, Pandas, NumPy, seaborn, scikit-learn, Matplotlib, Data analysis, Communication, Teamwork