

# ANDREEA POCOL

Ph.D. candidate, Computer Science University of Waterloo Website apocol[at]uwaterloo[dot]ca in apocol AndreeaPocol Google Scholar

## EXPERIENCE

### Instructor

#### WatSPEED

Feb 2026 – Apr 2026

Waterloo, ON

- Course: *Python 1*
- Topics: Functions, Variables and Conditional Statements, Input/Output, Mutation, Strings, Tuples, Iteration, Lists, Sets, Dictionaries and Comprehension, File Input and Output, Classes
- Delivered live and digital course content while facilitating technical orientation and Q&A sessions
- Moderated discussion forums and addressed student inquiries within a 24-hour window to ensure high satisfaction



### Course Supporter

#### WatSPEED

Nov 2024 – Feb 2025

Waterloo, ON

- Course: *Secure Coding*
- Languages: Python, C
- Topics: Architecture, Design & Implementation; Secure Coding with AI; Fuzzing, Profilers, & Penetration Testing
- Responsibilities: Graded assessments, provided individualized feedback to learners



### Teaching Assistant, Instructional Apprentice

#### University of Waterloo

Sep 2021 - Present

Waterloo, ON

- Held office hours, answered questions, marked assignments
- CS 116 (Intro to Computer Science) - W23, F23, F24, W25, S25, F25, W26
- CS 492 (Social & Ethical Implications of Computing) - S23, W24, S24
- CS 488/688 (Computer Graphics) - F22
- CS 350 (Operating Systems) - F21



### Software Developer

#### Magnet Forensics

Dec 2021 – Aug 2022

Waterloo, ON

- Improved cloud build stability, upgradeability & scalability
- Used **CloudFormation** to provision our infrastructure as code, **S3** to store configuration files / templates, **EC2** to spin up applications, **ECS** & **ECR** to manage **Docker** containers, **CloudWatch** to troubleshoot applications, **Route 53** to create health checks and alarms, & **Lambda** to monitor and maintain build fleets (tested using **serverless**)
- Set up a **Grafana** dashboard to monitor security vulnerabilities and issues, pulling in metrics using **Whitesource** and **AWS SecHub** (which feeds data into **EventBridge** and then **CloudWatch**), and presented the project at a company hackathon



### Software Developer

#### Ubisoft

Sep 2020 – Apr 2021

Toronto, ON

- Conducted R&D for a novel internal performance capture tool
- Developed, tested and peer-reviewed code in a **C#.NET / XAML (WPF)** frontend and **Python** backend



### Software Developer

#### Oracle Corporation

Jan 2020 – Apr 2020

Kitchener, ON

- Designed and built features for both new and legacy software in **Java**, and conducted unit testing using the **JUnit** framework



## SKILLS

Python C++ SQL Bash Object-oriented programming

OpenCV Unit testing Command line (Linux)

Algorithm design & efficiency Algorithm analysis

Algorithmic design paradigms Stereo 3D

## ACTIVITIES

### Research Assistantship

#### Dr. Lesley Istead

May 2021 – Aug 2021

Waterloo, ON

- Read papers, wrote **Python** code, looked for connections between colour palettes and film genre, director, etc., wrote paper sections



### Research Assistantship

#### Dr. Lesley Istead

May 2020 – Aug 2020

Waterloo, ON

- Read papers, wrote **OpenCV**, **C++** code, worked on improving edge extraction methodology for stereoscopic 3D line drawing, produced result images, wrote paper sections, assisted in user study



### Research Assistantship

#### Dr. Lesley Istead

Sep 2019 – Dec 2019

Waterloo, ON

- Read papers, wrote **OpenCV**, **C++** code, generated results



### Academic Service – External Reviewer

#### ACM ISS (PACM HCI) 2025 & 2026

Sep 2025, Mar 2026

Remote

- Performed peer review for 2 papers, evaluating submissions on technical novelty, empirical validity, and contributions to the field



### Open Source Contribution

#### jenkinsci/nomad-plugin

July 2019

[github.com/jenkinsci/nomad-plugin](https://github.com/jenkinsci/nomad-plugin)

- Enhanced the **Nomad** plugin for **Jenkins (Java)** with new features, driver support, and improved **Docker** integration



## HONOURS & AWARDS

- Natural Sciences and Engineering Research Council (NSERC) PGS D**, University of Waterloo (2023-2026)
- The Joseph Wai-Hung Liu Graduate Scholarship**, University of Waterloo (2023, 2024)
- OGS/QEII-GSST** (declined), University of Waterloo (2023)
- President's Graduate Scholarship**, University of Waterloo (2023, 2024)
- Graduate Research Studentship, University of Waterloo (2021, 2022, 2023)
- Math Domestic Graduate Student Award, University of Waterloo (2021, 2022, 2023, 2024)
- University of Waterloo Graduate Scholarship (2021, 2022, 2023)
- President's Research Awards, University of Waterloo (2021, 2020)
- University of Waterloo-Waterloo County Entrance Scholarships (2017, 2018)
- President's Scholarship of Distinction, University of Waterloo (2017)
- Governor General's Academic Medal**, Former Governor General of Canada David Johnston (2016)
- Dr. Mabel B. Dunham Award**, Grand Valley Institute for Women (2016)

- Developed frontend logic in **JavaScript** and UI / UX with **CSS**
- Developed code in a virtual development environment built on **Oracle SQL Developer**, **Vagrant** and **Oracle VirtualBox**
- Developed robust, browser-based, **GUI tests** using **Groovy**, **XPATH**, **HTML**, **Java** and **Selenium Webdriver**

## Software Tools & Infrastructure Developer



### Christie Digital Systems

📅 May 2019 – Aug 2019

📍 Kitchener, ON

- Re-architected the engineering infrastructure into a distributed, parallel compute cluster in a **R&D / POC** project
- Used **Docker** and **LXD** together with configuration management / provisioning tools - **Packer (Groovy)**, and **Ansible (YML)**, monitoring tools (**InfluxData** stack), and binary repository tool **Artifactory** to fully containerize FPGA and software builds for projectors in adherence to the principles of **infrastructure-as-code**

## Application Developer

### Sun Life Financial



📅 Sep 2018 – Dec 2018

📍 Waterloo, ON

- Developed **PowerShell** scripts to automate server deployment & installation prep (start & stop services, sites, IIS, COM+, validation)
- Used **Application Life Cycle Management** and **TFS** in projects to develop, code, **unit test** and debug **SQL** Stored Procedures
- Developed and presented a scalable **C#.NET** app which communicates with MS SQL Server and the Event Viewer to monitor programs for crashes and automate issue resolution / escalation which is traditionally handled by on-call personnel
- Created **C#.NET Core** DLLs (e.g. use JSON to post to JIRA through web **API**) for micro-services in a new distributed logging framework

## Distributed Developer

### Sun Life Financial



📅 Jan 2018 – Apr 2018

📍 Waterloo, ON

- Developed, coded, tested, and debugged **Visual Basic** scripts towards the maintenance of web-based applications
- Used **SQL**, **T-SQL** and **VBA** to maintain company **databases** in production via problem analysis, resolution, and reporting
- Interfaced with system designers, business analysts, and application analysts using **JIRA** to deliver high-quality solutions

## EDUCATION

### PhD, Computer Science (ongoing)

#### University of Waterloo



📅 Oct 2022 – Present

- Specialization: Computer Graphics
- Supervisors: Craig S. Kaplan, Lesley Istead

### MMath, Computer Science



#### University of Waterloo

📅 Sep 2021 – Sep 2022

- Specialization: Computer Graphics
- Supervisors: Craig S. Kaplan, Lesley Istead
- Transferred to Ph.D. without completing master's

### BCS, Computer Science



#### University of Waterloo

📅 Sep 2016 – Aug 2021

- Honours with Distinction (cumulative GPA: 84%)
- Co-operative Program
- English Language and Literature Minor

### International Baccalaureate Diploma

#### Cameron Heights Collegiate Institute



📅 Sep 2012 – Sep 2016

- Cumulative GPA: 98%

## PUBLICATIONS

### 📖 Books

- Istead, Lesley, Andreea Pocol, and Sherman Siu (2022b). *Evaluating Gender Bias in Film Dialogue*. Valencia, Spain: Springer-Verlag, pp. 403–410. ISBN: 978-3-031-08472-0. DOI: 10.1007/978-3-031-08473-7\_37.

### 📄 Journal Articles

- Istead, Lesley, Joe Istead, Andreea Pocol, and Craig S. Kaplan (2022a). "A Simple, Stroke-Based Method for Gesture Drawing". In: *Virtual Reality and Intelligent Hardware (VRIH) Journal* 4 (5). Best Paper Award: <https://cgs-network.org/legacy/cgi22/CGI22-AWARDS.html>. DOI: 10.1016/j.vrih.2022.08.004.

### 🌸 Conference Proceedings

- Pocol, Andreea, Lesley Istead, and Craig Kaplan (2025). "Binned-KMeans: Extracting Memorable, Explainable, Weighted and Sorted Colour Palettes from Videos". In: *2025 International Conference on Content-Based Multimedia Indexing (CBMI)*, pp. 1–5. DOI: 10.1109/CBMI66578.2025.11339288.
- Pocol, Andreea, Lesley Istead, and Craig S. Kaplan (2024). "Evaluating and Improving Disparity Maps Without Ground Truth". In: *Intelligent Systems and Applications*. Ed. by Kohei Arai. Cham: Springer Nature Switzerland, pp. 153–177. ISBN: 978-3-031-66329-1.
- Pocol, Andreea, Lesley Istead, and Craig Steven Kaplan (2024). "Evaluating And Improving Disparity Maps Without Ground Truth". In: *ACM SIGGRAPH 2024 Posters*. SIGGRAPH '24. Denver, CO, USA: Association for Computing Machinery. ISBN: 9798400705168. DOI: 10.1145/3641234.3671049. URL: <https://doi.org/10.1145/3641234.3671049>.
- Pocol, Andreea, Lesley Istead, Sherman Siu, Sabrina Mokhtari, and Sara Kodeiri (2024). "Seeing is No Longer Believing: A Survey on the State of Deepfakes, AI-Generated Humans, and Other Non-veridical Media". In: *Advances in Computer Graphics*. Ed. by Bin Sheng, Lei Bi, Jinman Kim, Nadia Magnenat-Thalmann, and Daniel Thalmann. Cham: Springer Nature Switzerland, pp. 427–440. ISBN: 978-3-031-50072-5.
- Song, Yusen, Andreea Pocol, and Lesley Istead (2024). "An Evaluation of Gender Bias in 167K Movie Posters". In: *Intelligent Systems and Applications*. Ed. by Kohei Arai. Cham: Springer Nature Switzerland, pp. 332–358. ISBN: 978-3-031-66329-1.
- Istead, Lesley, Joe Istead, Andreea Pocol, and Craig S. Kaplan (2022b). "A Simple, Stroke-Based Method for Gesture Drawing". In: *Computer Graphics International 2022*. Best Paper Award. DOI: 10.1016/j.vrih.2022.08.004.
- Istead, Lesley, Andreea Pocol, and Sherman Siu (2022a). "Evaluating Gender Bias in Film Dialogue". In: *Natural Language Processing and Information Systems: 27th International Conference on Applications of Natural Language to Information Systems, NLDB 2022, Valencia, Spain, June 15-17, 2022, Proceedings*. Valencia, Spain. DOI: 10.1007/978-3-031-08473-7\_37.
- Istead, Lesley, Andreea Pocol, Sherman Siu, William Chen, Alex Zdanowicz, Alex Rowaan, and Craig S. Kaplan (2022). "The Colour of Horror". In: *ACM SIGGRAPH European Conference on Visual Media Production (CVMP)*. DOI: 10.1145/3565516.3565523.
- Pocol, Andreea and Lesley Istead (2022). "Assessing the Impact of Movie Plot Summaries on Box Office Sales". In: *2022 IEEE Eighth International Conference on Big Data Computing Service and Applications (BigDataService)*, pp. 48–52. DOI: 10.1109/BigDataService55688.2022.00015.
- Istead, Lesley, Andreea Pocol, Craig S. Kaplan, Isaac Watt, Nick Lemoing, and Alicia Yang (2021). "Generating Rough Stereoscopic 3D Line Drawings from 3D Images". In: *Proceedings of Graphics Interface 2021*. GI 2021. Virtual Event: Canadian Information Processing Society, pp. 178–185. ISBN: 978-0-9947868-6-9. DOI: 10.20380/GI2021.20.

## FEATURED

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“Computer science meets cinema: University of Waterloo researchers closely analyze colour in films”

**CTV News**



March 2023

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“Computer Scientists Paint a Picture of Six Decades of Movies”

**ACM Tech News**



March 2023

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Mike Farwell Show (Radio)

**Mike Farwell Show**



March 2023

- Tuesday March 14th, 2023 [1:25:15]
  - Friday March 8th, 2024 [0:18:50]
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Four of these faces were produced entirely by AI... can YOU tell who's real? Nearly 40% of people got it wrong in new study



**Daily Mail**

March 2024

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As generative AI becomes more sophisticated, its harder to distinguish the real from the deepfake

**The Conversation**



March 25, 2025

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International Womens Day: Celebrating five Cheriton School of Computer Science researchers

**The Conversation**



March 8, 2024