Yunkai **Wang**

Software Developer · Software Engineer

Ottawa, ON

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Education

Carleton University — *Ottawa, ON*

M.C.S. Computer Science — *Jan. 2020 - Current*

- Research in Computational Geometry. GPA: 11.4/12. Expected graduation: June 2021.
- **Select courses:** Statistical and Syntactic Pattern Recognition, AI-enabled Software Verification and Testing, Algorithms for Data Science.

B.C.S. Computer Science — *Sep. 2014 - Jun. 2019*

- Algorithms Stream with Minor in Mathematics. GPA: 11.67/12.
- **Select courses:** Object-Oriented Software Engineering, Abstract Data Types and Algorithms, Operating Systems, Artificial Intelligence, Neural Networks, Database Management Systems, Real-Time Concurrent Systems, Design and Analysis of Algorithms, Linear Algebra, Calculus.

Skills

Languages	Python, Java, C, C++, JavaScript (Node.js, React), SQL, Swift, HTML, Scheme, Prolog, Shell
Platforms	AWS, Linux (Ubuntu), Windows, Mac
Technologies	Django, Eclipse, Express, Git, Perfect, React Native, Scikit-learn, Tensorflow, Visual Studio Code

Experience

Open Source Integration Developer — *Ottawa, ON*

Blindside Network Inc. — *May. 2018 - Aug. 2018*

- Installed and integrated BigBlueButton with open source platforms to manage entire activities at one spot and improve online learning process.
- Implemented BigBlueButton API libraries using both Java and Python for formatting the API requests and parsing the responses.
- Developed a zimlet for Zimbra users to freely use BigBlutButton; extended Zimbra server by adding both HTTP and SOAP request handler for meeting administration and receive callbacks from BigBlueButton server.
- Deployed a XBlock using XBlock SDK for integrating Open Edx with BigBlueButton; supported features including join meeting and BigBlueButton server configuration.

Programmer — *Ottawa, ON*

Carleton University — *May. 2017 - Dec. 2017*

- Established and launched an automated diagnostic test generation application for elementary arithmetic skills improvement; developed a decoding application for analyzing the test result and reporting user's deficient skills; documented a user manual for the application.
- Implemented multiple code generation methods for generating the best test template.
- Applied web server for computing disjunct matrix based on the given input, along with a monitor for overseeing the healthy status of the server.

Java Developer — *Ottawa, ON*

Espial Group Inc. — *Sep. 2016 - Dec. 2016*

- Collaborated in an Agile team; partificated in the full software development life cycle.
- Configured virtual labs on AWS to offer easier access of the MSP platform for global customers and increase the lab availability for other developers and teams; migrated and configured the entire MSP platform on EC2 instances.
- Maintained and upgraded existing containerized applications; executed automated tests for app efficiency enhancement.
- Founded JESB, an internal team management tool for monitoring teams' statistics.

Teaching Assistant — *Ottawa, ON*

Carleton University — *Sep. 2015 - Apr. 2021*

- Offered operational and administrative support to professors; delivered a range of teaching and assessment activities including tutorials directed towards the successful delivery of subjects; provided effective timely and appropriate feedback to students to support their learning.
- Prepared and lessoned two lectures for the Theory of Computation course.
- Managed nine different undergraduate level courses and supervised over five hundred students.

Research Assistant — *Ottawa, ON*

Carleton University — *May. 2020 - Apr. 2021*

- Worked under the supervison of Prosenjit Bose and Ahmad Biniaz on uncovering simplified algorithms for piercing disks in the plane.

Projects

Retrieve
Carleton U.

`github.com/Jasonjys/retrieve` *2017*

- **Technologies**: React Native, Express, Node.js, Firebase, EC2 instance, S3 bucket
- A free-to-use lost-and-found mobile app deployed on iOS; supported user registration or log in through Facebook identity provider; permitted users create posts or query posts using keywords or locations.
- Created and applied chat functionality; allowed sending images and locations to other users and stored figures in S3 bucket.
- Constructed a web server on EC2 instance for handling query and chat requests; cached query results in local memory to achive low latency and increase server availability; automatically generate .

TFTP File Transfer System
Carleton U.

`github.com/yunkaiwang/TFTPFileTransferSystem` *2018*

- **Technologies**: Java, Socket programming
- Implemented a connection-less file transfer system based on the TFTP specialization.
- Supported traditional file manipulation commands used in Linux in the terminal based user interface.

JESB, Jira to ElasticSearch Bridge
Espial

Espial's internal tool *2016*

- **Technologies**: Elastic Search, Kibana, Node.js, Quality Automated Test Framework
- Founded an internal team management application for monitoring teams' statistics; designed automated tests for app efficiency enhancement.

Landlord poker game AI
Carleton

`https://github.com/yunkaiwang/DouDiZhuAI` *2019*

- **Technologies**: Swift, Perfect, Best-reply Search
- Presented an innovative method of building a game search algorithm based on Best-reply Search for the landlord poker game.
- Constructed an mobile app on iOS that allows users play against AI players powered by the proposed algorithm.
- Launched a web server using Perfect to transfer the computational expensive tasks to the server.

Judging a book by its title
Carleton U.

`github.com/yunkaiwang/comp4107/tree/master/project` *2018*

- **Technologies**: Scikit-learn, Tensorflow, Keras, Numpy, Matplotlib, Python
- Applied convolutional neural networks for categorizing books based on their titles; acquired 66% validation accuracy using pre-trained GloVe embeddings; investigated the limitations of MLP models for NLP-related tasks.

Publications

2021 **Simple Linear Time Algorithms For Piercing Pairwise Intersecting Disks,** A. Biniaz, P. Bose, Y. Wang. *WADS*

2018 **A Proposed Method for Designing Diagnostic Mathematics Tests,** K. Cheung, B. Stevens, Y. Wang. *eJMT*

Awards

2019 Senate Medal for Outstanding Academic Achievement *Carleton*

2019 Deans' Honour List (Also honoured in 2015, 2016 and 2018) *Carleton*

2015 Champion in Wuqing Teenager Soccer League *Wuqing District*

2014 Entrance Scholarship *Carleton*

2014 School Champion in Euclid Mathematics Contest *uWaterloo*

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OEN: 373823095

Department and Course Title	Course Number	Credit Value	Grade	Grade Point	Comments
Fall 2014 (September-December)					
BACHELOR OF COMPUTER SCIENCE STREAM: SOFTWARE ENGINEERING CO-OPERATIVE EDUCATION					
Eng.Sec.Lang.: Adv ESL for Acad Purp	ESLA 1900	1.00	B+	9.00	
CompSci.: Discrete Structures	COMP 1805	0.50	A+	6.00	
CompSci.: Intro to Computer Science I	COMP 1405	0.50	A	5.50	
Math/Stats: Elementary Calculus I	MATH 1007	0.50	A+	6.00	
Winter 2015 (January-April)					
BACHELOR OF COMPUTER SCIENCE STREAM: SOFTWARE ENGINEERING CO-OPERATIVE EDUCATION					
CompSci.: Intro to Computer Science I	COMP 1406	0.50	A+	6.00	
Math/Stats: Linear Algebra (Eng. or S	MATH 1104	0.50	A+	6.00	
Math/Stats: Elementary Calculus II	MATH 2007	0.50	A+	6.00	
Statistics: Intro to Stat Modelling I	STAT 2507	0.50	A+	6.00	
Math/Stats: Intro Mathematical Reasor	MATH 1800	0.50	A+	6.00	
Good Standing					
Fall 2015 (September-December)					
BACHELOR OF COMPUTER SCIENCE STREAM: SOFTWARE ENGINEERING CO-OPERATIVE EDUCATION					
Econ.: Introduction to Economics	ECON 1000	0.00	CTN		
CompSci.: Intro to Systems Programmir	COMP 2401	0.50	B+	4.50	
CompSci.: Abstract Data Types/Algorit	COMP 2402	0.50	A+	6.00	
CompSci.: Discrete Structures II	COMP 2804	0.50	A+	6.00	
Phys.: University Physics I	PHYS 1007	0.50	A+	6.00	
Winter 2016 (January-April)					
BACHELOR OF COMPUTER SCIENCE STREAM: SOFTWARE ENGINEERING CO-OPERATIVE EDUCATION					
Co-op: Co-op	COOP 1000	0.00	SAT		
Econ.: Introduction to Economics	ECON 1000	1.00	A	11.00	
CompSci.: Intro to Software Engineer:	COMP 2404	0.50	A+	6.00	
CompSci.: Fundamentals Web Applicatic	COMP 2406	0.50	A+	6.00	
CompSci.: Intro to Theory of Computat	COMP 3803	0.50	A+	6.00	
Math/Stats: Intermediate Calculus	MATH 2008	0.50	A+	6.00	
Good Standing					
Summer 2016 (May-August)					
BACHELOR OF COMPUTER SCIENCE STREAM: SOFTWARE ENGINEERING CO-OPERATIVE EDUCATION					
Japanese: Intensive First-Year Japane	JAPA 1110	1.00	A+	12.00	
Phil.: Introduction to Symbolic Logic	PHIL 2001	0.50	A+	6.00	
Social Wrk.: Intr Stat Analys Social	SOWK 2502	0.50	A	5.50	
Fall 2016 (September-December)					
BACHELOR OF COMPUTER SCIENCE STREAM: SOFTWARE ENGINEERING MINOR IN MATHEMATICS CO-OPERATIVE EDUCATION					
CompSci.: Co-op Work Term	COMP 3999	0.00	SAT		
Winter 2017 (January-April)					
BACHELOR OF COMPUTER SCIENCE STREAM: SOFTWARE ENGINEERING MINOR IN MATHEMATICS CO-OPERATIVE EDUCATION					
Japanese: Intensive Second-Year Japar	JAPA 2110	1.00	A+	12.00	
Math/Stats: Linear Algebra II	MATH 2107	0.50	A+	6.00	
CompSci.: Design & Analy of Algorithr	COMP 3804	0.50	A+	6.00	
Good Standing					

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Summer 2017 (May-August)					
BACHELOR OF COMPUTER SCIENCE STREAM: SOFTWARE ENGINEERING MINOR IN MATHEMATICS CO-OPERATIVE EDUCATION					
CompSci.: Co-op Work Term	COMP 3999	0.00	SAT		
Fall 2017 (September-December)					
BACHELOR OF COMPUTER SCIENCE STREAM: SOFTWARE ENGINEERING MINOR IN MATHEMATICS CO-OPERATIVE EDUCATION					
CompSci.: Object-Oriented Software Er	COMP 3004	0.50	A	5.50	
CompSci.: Co-op Work Term	COMP 3999	0.00	SAT		
Winter 2018 (January-April)					
BACHELOR OF COMPUTER SCIENCE STREAM: ALGORITHMS MINOR IN MATHEMATICS CO-OPERATIVE EDUCATION					
CompSci.: Human-Computer Interaction	COMP 3008	0.00	WDN		Withdrawn
CompSci.: Artificial Intelligence	COMP 4106	0.50	A+	6.00	
Math/Stats: Abstract Algebra I	MATH 2108	0.50	A+	6.00	
CompSci.: Programming Paradigms	COMP 3007	0.50	A+	6.00	
SysComp. Eng.: Real-Time Concurrent S	SYSC 3303	0.50	A+	6.00	
Summer 2018 (May-August)					
BACHELOR OF COMPUTER SCIENCE STREAM: ALGORITHMS MINOR IN MATHEMATICS CO-OPERATIVE EDUCATION					
CompSci.: Co-op Work Term	COMP 3999	0.00	SAT		
Fall 2018 (September-December)					
BACHELOR OF COMPUTER SCIENCE STREAM: ALGORITHMS MINOR IN MATHEMATICS CO-OPERATIVE EDUCATION					
CompSci.: Algorithms Modern Data Sets	COMP 3801	0.50	A+	6.00	
CompSci.: Database Management Systems	COMP 3005	0.50	A+	6.00	
CompSci.: Distributed Computing	COMP 4001	0.50	A+	6.00	
CompSci.: Design & Analysis of Algor	COMP 4804	0.50	A+	6.00	
CompSci.: Neural Networks	COMP 4107	0.50	A	5.50	
Winter 2019 (January-April)					
BACHELOR OF COMPUTER SCIENCE STREAM: ALGORITHMS MINOR IN MATHEMATICS CO-OPERATIVE EDUCATION					
Math/Stats: Linear Algebra III	MATH 3107	0.50	A+	6.00	
CompSci.: Operating Systems	COMP 3000	0.50	A+	6.00	
CompSci.: Honours Project	COMP 4905	0.50	A+	6.00	

Bachelor of Computer Science
With High Distinction
Stream: Algorithms
Minor in Mathematics
Co-operative Education
Conferred May, 2019

Fall 2019 (September-December)					
BACHELOR OF COMPUTER SCIENCE STREAM: ALGORITHMS MINOR IN MATHEMATICS CO-OPERATIVE EDUCATION					
Winter 2020 (January-April)					
MASTER OF COMPUTER SCIENCE					
CompSci.: Stat & Syntactic Pattern Re	COMP 5107	0.50	A+	6.00	
CompSci.: Evolving Information Networ	COMP 5310	0.50	A-	5.00	
CompSci.: Applied Computational Geome	COMP 5409	0.50	A	5.50	
Fall 2020 (September-December)					
MASTER OF COMPUTER SCIENCE					
CompSci.: Algorithms for Data Science	COMP 5112	0.50	A+	6.00	
CompSci.: AI-enable Sftware Verif & T	COMP 5900	0.50	A+	6.00	
Winter 2021 (January-April)					
MASTER OF COMPUTER SCIENCE					
CompSci.: M.C.S. Thesis	COMP 5905	0.00	CUR		

*http://www2.carleton.ca/registrar/your-record/transcript/transcript_validation/

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Student Scholarships
2014 President's Scholarship
2015 Harry S. Southam Scholarship
2015 Deans' Honour List
2016 Lester Bowles Pearson Scholarship
2016 Deans' Honour List
2018 E.W.R. Steacie Scholarship
2018 Deans' Honour List
2019 Senate Medal for Outstanding Academic Achievement
2019 Deans' Honour List

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*http://www2.carleton.ca/registrar/your-record/transcript/transcript_validation/