Yiping Wang

Curriculum vitae

Honours Bachelor of Science
Department of Computer Science
University of Victoria
Victoria, British Columbia, Canada

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AREA OF INTERESTS

My interests and enthusiasm are for **Computer Vision** and **Natural Language Processing** for **Medicine**. I am exploring how to use medical data and machine learning to help doctors make diagnostic decisions. I am broadly interested in computer vision for improving lesion detection and classification, anatomical structure segmentation and quantification in all types of imaging modalities. I am also fascinated by natural language processing for analyzing genomics and clinical reports, and their linkages between images.

EDUCATION

Honours Bachelor of Science — Sept. 2017 – Apr. 2021
Computer Science, University of Victoria — Victoria, British Columbia, Canada
Cumulative GPA: 8.54 / 9.00 or 91.21%
Honours Project: Generalization in Multi-Agent Reinforcement Learning for Crowd Navigation

Minor degree — May 2018 – Apr. 2021
Electrical Engineering, University of Victoria — Victoria, British Columbia, Canada

Bachelor of Science (Transferred) — May 2015 – Jul. 2017
Mathematics, Shenzhen University — Shenzhen, Guangdong, China
Cumulative GPA: 3.76 / 4.5

PEER-REVIEWED JOURNAL PUBLICATIONS

– 2020

- A. Levine*, J. Peng*, D. Farnell, M. Nursey, Y. Wang, J. Naso, C. Ren, H. Farahani, B. Tessier-Cloutier, C. Chen, D. Chiu, A. Talhouk, B. Sheffield, M. Riazy, P. Ip, C. Parra-Heran, A. Mills, N. Singh, T. Salisbury, J. Lee, T. Salcudean, S. S.M. Jones, D. G. Huntsman, C. B. Gilks, S. Yip, A. Bashashati, **Synthesis of diagnostic quality cancer pathology images**, the Journal of Pathology

PEER-REVIEWED CONFERENCE PAPERS

– 2020

- Y. Wang*, D. Farnell*, H. Farahani, M. Nursey, B. Tessier-Cloutier, S. J.M. Jones, D. G. Huntsman, C. Blake Gilks, A. Bashashati, **Classification of Epithelial Ovarian Carcinoma Whole-Slide Pathology Images Using Deep Transfer Learning**, 3rd International Conference on Medical Imaging with Deep Learning, Montréal, QC, Canada, 6 – 8 July, 2020.

SUBMITTED FOR PUBLICATION

– 2020

- A. Pesaranghader*, Y. Wang*, L. Di Jorio, M. Havaei, Y. Bengio, **CT-SGAN: Computed Tomography with 3D Synthetic Medical Images using Recurrent Generative Adversarial Networks**, Submitted to the Journal of Biomedical and Health Informatics, Generative Adversarial Networks in Biomedical Image Computing Special Issue.
- M. Havaei*, X. Mao*, Y. Wang, L. Robitaille, Q. Lao, **Conditional Generation of Medical Images via Disentangled Adversarial Inference**, Submitted to Medical Image Analysis.

RESEARCH EXPERIENCE

University of Victoria Sept. 2020 – Apr. 2021
Research Assistant Victoria, British Columbia, Canada

- Recipient of the Jamie Cassels Undergraduate Research Award.
- Investigate the value of training environments and generalization in Deep Reinforcement Learning-based navigation agents.

Imagia May 2020 – Dec. 2020
Research Intern Montréal, Québec, Canada

- Researched in generative models for lung 3D CT scans.
- Propose and implement a novel recurrent generative adversarial network.
- Evaluate quantitatively and qualitatively the performance of various generative models in CT scans.

University of British Columbia Sept. 2019 – Apr. 2020
Research Intern Vancouver, British Columbia, Canada

- Researched in patch-level and WSI-level classification for epithelial ovarian carcinoma whole-slide pathology images.
- Proposed and implemented deep learning-based multi-scale and transfer learning algorithms to improve patch-level classification accuracy, as well as develop algorithms for slide-level predictions.
- Benchmarked hand-crafted features, deep learning features and their combinations for patch-level classification.
- Evaluated the synthetic patch-level pathology images generated by progressive GAN as an augmentation source to improve the performance of CNN for patch-level classification.
- Performed survival analysis using the Cox regression of ovarian cancer patients' survival data.

University of Victoria May 2019 – Aug. 2019
Research Intern Victoria, British Columbia, Canada

- Researched in patch-level tumour segmentation for the liver hepatocellular carcinoma whole-slide pathology images.
- Implemented and applied a CVPR 2019 multi-scale with an adaptive weighting deep learning algorithm for automated patch-level detection and segmentation.

CAPSTONE PROJECTS

– 2020

- Y. Wang, **Deep Reinforcement Learning and Visual Computing for Crowd Navigation**, CSC473 Fundamentals of Computer Animation Capstone Project (98% A+), University of Victoria, Fall 2020.

– 2019

- Y. Wang, C. Ten Have and M. Kennedy, **End-to-End Facial Expression Modifier**, CSC486B Deep Learning for Computer Vision Capstone Project (94% A+), University of Victoria, Spring 2019.
- B. Pattie and Y. Wang, **Segmentation of Overlapping Cervical Cells by Joint Level Set Method**, ECE435 Medical Image Processing Capstone Project (95% A+), University of Victoria, Spring 2019.

ACTIVITIES

IEEE Victoria Section — 1st Aug. 2020 – Present
Student Member — Victoria, British Columbia, Canada

Waterloo Mathematics Undergraduate Research Conference — 27th Sept. – 30th Sept. 2019
Attendee — University of Waterloo, Waterloo, Ontario, Canada

Undergraduate Research Opportunities Conference — 27th Sept. – 30th Sept. 2018
Attendee — University of Waterloo, Waterloo, Ontario, Canada

SOFTWARE DEVELOPMENT EXPERIENCE

EncoreFX (now Global Reach Canada) — Sept. 2018 – Dec. 2018
Software Developer Intern — Victoria, British Columbia, Canada

- Developed an online foreign exchange trading and payment platform using Angular and C# ASP.NET Core framework.
- Created user features and interfaces for facilitating interactions, which involves designing, developing, and testing new Angular components on the front-end, as well as building and updating new RESTful API on the back-end.
- Improved unit testing coverage using Jasmine, developed a Selenium test suite and researched in preventing cross-site request forgery and cross-site scripting.

Kinsol — May 2018 – Aug. 2018
Software Developer Intern — Victoria, British Columbia, Canada

- Developed responsive chatbot applications using Python Flask framework, JavaScript, jQuery, and Bootstrap.
- Improved natural language understanding model through hyper-parameter tuning and regularization for the chatbot team.
- Applied YOLO algorithm for detecting and recognizing vehicles and pedestrians in Darknet for the computer vision team.

SKILLS

- **Languages**: Python, Java, C++
- **Libraries**: NumPy, PyTorch, TensorFlow, OpenCV, OpenGL, Unity
- **Tools**: Git, Docker, AWS, Linux