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**, **Medical Image Analysis** and **Machine Learning**. I am exploring how to use medical image data and machine learning to help doctors make diagnostic decisions. I am broadly interested in machine learning for improving lesion detection and classification, anatomical structure segmentation and quantification, cancer diagnosis and therapy.

EDUCATION

Honours Bachelor of Science — Sept. 2017 – Present
Computer Science, University of Victoria — Victoria, British Columbia, Canada
Thesis: Deep Learning for Computer Vision
Cumulative GPA: 8.42 / 9.00 or 90.11%

Minor degree — May 2018 – Present
Electrical Engineering, University of Victoria — Victoria, British Columbia, Canada

RESEARCH EXPERIENCE

Imagia — May 2020 – Aug. 2020
Research Intern — Montréal, Québec, Canada

- Incoming Applied Research Intern

Artificial Intelligence in Medicine Lab, 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 design novel 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 ProGAN as an augmentation step to improve the performance of CNN for patch-level classification.
- Performed survival analysis using the Cox regression of ovarian cancer patients' survival data.
- Designed and built general deep learning for pathology image classification platform using PyTorch, Docker and Kronos.

Visual Computing Group, 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.
- Developed an unsupervised threshold-based algorithm for segmentation of the tumour area in PET scans as a preprocessing step for image registration.

PROFESSIONAL EXPERIENCE

EncoreFX Sept. 2018 – Dec. 2018
Software Developer Intern Victoria, British Columbia, Canada

- Developed an online Foreign Exchange Trading and Payment platform, EncoreFX Express, 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 ES6, jQuery, and Bootstrap.
- Improved Deep Neural Networks through hyper-parameter tuning and regularization for the chatbot team.
- Applied YOLO algorithm for detecting and recognizing various vehicles and pedestrians in Python for the computer vision team.

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**, Science Advances, 2020. (*under review*)

PEER-REVIEWED CONFERENCE PUBLICATIONS

– 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. (*accepted*)

PROJECTS

– 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

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

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