Clinton J. Wang

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Education

Massachusetts Institute of Technology, Cambridge MA   2018–present
    Ph.D. candidate in Electrical Engineering and Computer Science (EECS), Current GPA: 5.0/5.0

Yale University, New Haven CT   2011–2015
    B.S. in Biomedical Engineering, GPA: 3.9/4.0 (Magna Cum Laude)
- Department of Biomedical Engineering Prize
- Tau Beta Pi Engineering Honor Society

Research Experience

MIT Computer Science and Artificial Intelligence Laboratory   2018–present
Supervised by Polina Golland
- Develop deep generative and interpretable networks to discover and characterize new MRI biomarkers that can predict patient outcomes following ischemic stroke.
- Collaborate with neurologists at Massachusetts General Hospital to describe patterns of white matter hyperintensities and their effect on stroke severity and recovery.

Yale Radiology Research Lab   2017–2018
Supervised by Jim Duncan
- Outperformed radiologists in classification of hepatic lesions on MRI using convolutional neural networks, while providing textual evidence via probabilistic model as well as interpretability via saliency maps.
- Developed image analysis algorithms including automated tumor segmentation and prediction of Lipiodol deposition patterns in liver MRIs.
- Collaborated with radiologists at Yale New Haven Hospital to characterize relationships between MRI data, clinical covariates and treatment response in liver cancer patients.
- Developed applications to automate data retrieval and handling from Yale New Haven Hospital medical image archive and research platform.

Yale School of Engineering & Applied Science   2014–2016
Supervised by Stuart Campbell
- Developed multi-scale computational model of heart muscle contraction using interacting Markov models, fitted with particle swarm optimization.
- Characterized function and dynamics of cMyBP-C protein in cardiac muscle using the above model, helping to explain the link between its mutations and cardiac hypertrophy.

Yale School of Engineering & Applied Science   2013
Supervised by Hal Blumenfeld
- Characterized propagation of partial seizures through the brain via time series and Fourier analysis of EEGs. Used principal component analysis to create dynamic model of seizure activity.

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Work Experience

Analytics & Technology Consultant, *PwC*   2015–2017
- Developed LSTM-based neural networks for sentiment analysis, keyword extraction and topic classification on social media text using semi-supervised learning.
- Developed requirements and design of an IT solution that delivered $600K+ of value to financial services client. Managed development team that built the solution.
- Created system architecture documentation and processes providing client with visibility into shadow IT systems spanning hundreds of undocumented applications.
- Mobilized six projects worth $7.6M combined at the vanguard of $90M+ IT modernization program, as one of two project managers handling financials, governance, risk/issue mitigation, compliance and communications.
- Developed business logic and SQL code for cleansing, matching and merging customer data for a major airline.

Leadership Roles

Controller, Sidney-Pacific Graduate Residence (houses 749 students)   2019–present
- Manage internal budgeting, reimbursements, accounting, and financial reporting for MIT's largest graduate dormitory.
- Interface with residents, other SP officers, and Student Activities Office to advise on budgeting and help ensure all SP activities and events receive appropriate allocations.
- Ensure students receive reimbursements promptly while maintaining detailed records.

Associate Managing Editor, *Yale Daily News* (YDN)   2013–2014
- Designed and implemented YDN's online strategy to boost readership and improve user experience.
- YDN won 2013 national award for Best All-Around Daily Student Newspaper from Society of Professional Journalists.

Production & Design Editor, *Yale Daily News* (YDN)   2012–2013
- Oversaw design of the newspaper, collaborating with 40 co-editors; recruited, trained and managed 10 designers.
- Improved and standardized infographics; removed production bottleneck.
- Worked with web developers to overhaul website design

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Publications
Journal Articles
- **Wang, C.J.***, Hamm, C.A.*, Savic, L.J. et al. "Deep learning for liver tumor diagnosis part II: interpretable deep learning to characterize tumor features." *Eur Radiol* (2019). doi: 10.1007/s00330-019-06214-8
- Hamm, C.A.*, **Wang, C.J.***, Savic, L.J. et al. "Deep learning for liver tumor diagnosis part I: development of a convolutional neural network classifier for multi-phasic MRI." *Eur Radiol* (2019). doi: 10.1007/s00330-019-06205-9
- Letzen, B., **Wang, C.J.**, Chapiro J. "The Role of Artificial Intelligence in Interventional Oncology: A Primer." *J Vasc Interv Radiol* (2019). doi: 10.1016/j.jvir.2018.08.032
- **Wang, C.**, Schwan J., Campbell S.G. "Slowing of contractile kinetics by myosin-binding protein C can be explained by its cooperative binding to the thin filament." *J Mol Cell Cardiol* (2016). doi: 10.1016/j.yjmcc.2015.10.007

Conferences
- **Wang, C.J.**, Hamm C.A., Letzen, B.S., James S. Duncan, "A probabilistic approach for interpretable deep learning in liver cancer diagnosis," Proc. SPIE 10950, Medical Imaging 2019: Computer-Aided Diagnosis, 109500U (13 March 2019) (oral presentation). doi: 10.1117/12.2512473

Interests
- **Music composition** (classical): won Honorable Mention (2012) and was finalist (2013) at ASCAP Morton Gould Young Composer Awards
- **Graphic design**: won 2nd place in ACA Infographic Contest at Yale Institution for Social and Policy Studies (2013)
- **Languages**: Mandarin (advanced), German (basic), French (basic)

*Coauthors contributed equally to the study