# Nathan Ing

Los Angeles, California
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**EDUCATION**

**University of Southern California** Los Angeles, CA     Aug 2010 – May 2014

- B.S. in Biomedical Engineering

**RESEARCH EXPERIENCE**

**Cedars Sinai Medical Center** Research Associate     May 2015 – Present

- **BioImage Informatics Lab & Knudsen Lab**
  - Developed digital pathology and image analysis workflows
  - Worked with immunoflourescence and brightfield immunohistochemistry stained tissues
  - Maintained repositories for research project code
  - Supervisors: Dr. Arkadiusz Gertych and Dr. Beatrice Knudsen

- **Center for Bioinformatics and Functional Genomics**
  - Researched applications of machine learning to epigenomics
  - Applied recurrent neural networks to infer histone modifications from DNA methylation
  - Supervisor: Dr. Dennis Hazelett

**Cedars Sinai Medical Center** Engineering Intern     May 2014 – Dec 2014

- **BioImage Informatics Lab**
  - Developed software for automatic grading of prostate cancer images
  - Supervisor: Dr. Arkadiusz Gertych

**PUBLICATIONS**

**JOURNALS**

[1] **Ing, N.**, Huang, F., Conley, A., You, S., Ma, Z., Klimov, S., ... & Gertych, A. (2017). "A novel machine learning approach reveals latent vascular phenotypes predictive of renal cancer outcome". *Scientific Reports*, 7(1), 13190.

[2] Gertych, A., **Ing, N.**, Ma, Z., Fuchs, T. J., Salman, S., Mohanty, S., ... & Knudsen, B. S. (2015). "Machine learning approaches to analyze histological images of tissues from radical prostatectomies". *Computerized Medical Imaging and Graphics*, 46, 197-208.

**CONFERENCES**

[1] **Ing, N.**, Tomczak, J.M., Miller, E., Garraway, I.P., Welling, M., Knudsen, B. S., Gertych, A. (2018, July). "A deep multiple instance model to predict prostate cancer metastasis from nuclear morphology". In *Medical Imaging with Deep Learning, 2018*.

[2] Ma, Z., Swiderska-Chadaj, Z., **Ing, N.**, Salemi, H., McGovern, D., Knudsen, B. S., Gertych, A. (2018, June). "Semantic Segmentation of Colon Glands in Inflammatory Bowel Disease Biopsies". In *International Conference on Information Technologies in Biomedicine* (Vol. 762). Springer, Cham.

[3] **Ing, N.**, Ma, Z., Li, J., Salemi, H., Arnold, C., Knudsen, B. S., & Gertych, A. (2018, March). "Semantic segmentation for prostate cancer grading by convolutional neural networks". In *Medical Imaging 2018: Digital Pathology* (Vol. 10581, p. 105811B). International Society for Optics and Photonics.

[4] **Ing, N.**, Salman, S., Ma, Z., Walts, A., Knudsen, B., & Gertych, A. (2016). "Machine learning can reliably distinguish histological patterns of micropapillary and solid lung adenocarcinomas". In *Information Technologies in Medicine* (pp. 193-206). Springer, Cham.

**PROJECTS**

- Personal: tfmodels - tools for training CNNs, pad - custom reinforment learning environment
- Work: svs-reader, milk - multiple instance learning toolkit, gleason-grade

**SKILLS**

Languages: Fluent: Python, MATLAB, Proficient: R

Machine Learning Frameworks: TensorFlow, Caffe

Research Interests: Causal Models, Computer Vision, Deep Neural Networks, Computational Biology

Hobbies: Snowboarding