Geoffrey F. Schau

⟨ schau.geoffrey@gmail.com ⟩ ⟨ +1 224 622 6010 ⟩ ⟨ schaugf.github.io ⟩ ⟨ Portland, OR, USA ⟩

FORMAL EDUCATION

Doctor of Philosophy, Biomedical Engineering — 2020
Oregon Health & Science University - School of Medicine — *Portland, Oregon, USA*

Master of Science, Electrical Engineering — 2015
Portland State University — *Portland, Oregon, USA*

Bachelor of Science, Biomedical Engineering — 2012
Rose-Hulman Institute of Technology — *Terre Haute, Indiana, USA*

PROFESSIONAL EXPERIENCE

Genentech, Inc. — 2020-present
Associate Scientist, Digital Pathology & Artificial Intelligence — *South San Francisco, California, USA*

Sole Proprietor — 2019-present
BrighterBioDesigns — *Portland, Oregon, USA*

Applied Research Engineer — 2012-2015
Microsystems Engineering, Inc. — *Lake Oswego, Oregon, USA*

Engineering Intern — 2011-2012
RH Ventures, Inc. — *Terre Haute, Indiana, USA*

Engineering Intern — Summer, 2011
Boston Scientific, Inc. — *Arden Hills, Minnesota, USA*

PUBLICATIONS AND PREPRINTS

- **Schau, G.F.**, et al., "Unsupervised Feature Manifold Learning for Rapid Annotation of Multiplexed Single-Cell Imaging Data" (*in preparation*)
- **Schau, G.F.**, et al., "Transfer Learning Approach to Predict Metastatic Origin from Histopathological Whole Slide Images" (*in preparation*)
- **Schau, G.F.**, Burlingame, E., Chang, Y.H., "DISSECT: DISentangle SharablE ConTent for Multimodal Integration and Crosswise-mapping", 59th IEEE Conference on Decision and Control, 2020 (*accepted*)
- Burlingame, E.A., McDonnell, M., **Schau, G.F.**, Thibault, G., Lanciault, C., Morgan, T., Corless, C., Gray, J.W., Johnson, B., Chang, Y.H., "SHIFT: virtual immunofluorescence staining of histologically-stained tissue by deep learning" (*under review*)
- **Schau, G.F.**, Burlingame, E.A., Thibault, G., Anekpuritanang, T., Wang, Y., Gray, J.W., Corless, C., Chang, Y.H., "Predicting primary site of secondary liver cancer with a neural estimator of metastatic origin," *J. Med. Imag.* 7(1), 012706 (2020), doi: 10.1117/1.JMI.7.1.012706.
- Thibault, G., Riesterer, J., Stoltz, K., Loftis, K., **Schau, G.F.**, Stempinksi, E., Lopez, C., Chang, Y.H., Gray, J.W., "Computer Vision Techniques for Cancerous Cell Analysis in FIB-SEM Images", *Proceedings of Microscopy and Microanalytics*, Vol. 25, 2019
- **Schau, G.F.**, Dane, M., Thibault, G., Gray J.W., Heiser, L., Chang, Y.H., "Variational Autoencoding Tissue Response to Microenvironment Perturbation", *Proc. SPIE Medical Imaging*, Vol. 10949, 2019
- **Schau, G.F.**, "Device, Method, and Algorithm to Assess Changes in Cardiac Output via Intracardiac Impedance Monitoring" Master's Thesis, Portland State University, Portland, OR, USA, 2015.

PRESENTATIONS

- "DISSECT: DISentangle SharablE ConTent for Multimodal Integration and Crosswise-mapping", 59th IEEE Conference on Decision and Control, Virtual Conference, 2020
- Unsupervised Histological Feature Manifold Learning for Massively Parallel Whole Slide Annotation, *OHSU - PSU Machine Learning for Health*, Portland, OR, USA, 2020
- Unsupervised Morphology Learning for Single-Cell Sub-Population Detection, *CSBC-PSON Image Analysis Workshop*, Seattle, WA, USA, 2020
- Histological Feature Dissimilarity between Primary and Metastatic Cancer, *Oregon Bioengineering Symposium*, Oregon State University, Corvallis, OR, USA, 2019
- Estimating Mutual Information Content of Biomedical Data Modalities through Self-Supervised Domain Translation, *Learning Meaningful Representations of Life Workshop, NeurIPS*, Vancouver, Canada, 2019
- Histological Feature Dissimilarity between Primary and Metastatic Cancer, *IMO Workshop V9.0 Tumor Board Evolution*, Moffitt Cancer Center, Tampa, FL, USA, 2019
- Deep Neural Estimation of Metastatic Origin of Liver Cancer, *Frontiers of AI-Assisted Care Scientific Symposium (FAC)*, Stanford University, Palo Alto, CA, USA, 2019
- Predicting Primary Site of Secondary Liver Cancer with a Neural Estimator of Metastatic Origin (NEMO) *PacNow Quantitative Biology Symposium*, OHSU, Portland, OR, USA, 2019
- Neural Estimation of Metastatic Origin, *NCI Mathematical Oncology/CSBC-PSON West Coast Symposia*, OHSU, Portland, OR, USA, 2019
- SHIFT.AI: Accelerated Imaging Analytics, *InventOR Pitch Competition*, Portland, OR, USA, 2019
- Deep Learning Approach for Assessment of Microenvironment Signals on Phenotypic State of Triple Negative Breast Cancer, *International Association of Breast Cancer Research*, Egmond An Zee, The Netherlands, 2019
- Deep Learning for Biomedical Domain Translation, *BME Seminar*, OHSU, Portland, OR, USA, 2019
- (*Invited Speaker*) Seeing More: Deep Learning in Biomedicine *BME Retreat*, Portland, OR, USA, 2019
- SHIFT: Predicting Biomarker Distribution in Medical Images through Speedy Histopathological to Immunofluorescent Translation, *OHSU Commercialization Conference*, OHSU, Portland, OR, USA, 2018
- Principle Feature Manifolds of Multicellular Growth Response to Microenvironment Perturbation, *OHSU Research Week*, Portland, OR, USA, 2018
- Variational Autoencoding Tissue Response to Microenvironment Perturbation, *SPIE Medical Imaging*, San Diego, CA, USA 2019
- Developmental Discordance Analysis for Single-Cell RNA-seq, *Intelligent Systems for Molecul Biology*, Prague, Czech Republic, 2017
- Consensus Representation of Lineage Expression (CREoLE) for Single-Cell RNA-seq, *Intelligent Systems for Molecular Biology*, Orlando, FL, USA, 2016

SELECTED AWARDS

Giersch Conference & Summer School in Frankfurt am Main Fellowship Award	2020
Learning Meaningful Representations of Life Workshop, NIH Travel Award	2019
NeurIPS 2019 Travel Award	2019
Integrated Mathematical Oncology Workshop on Tumor Board Evolution Travel Award	2019
CSBC-PSON West Coast Symposium Junior Investigator Team Award ($36,600)	2019
InventOR Impact Award ($5,000)	2019
OCSSB Travel Award to International Association of Breast Cancer Researchers Conference	2019
OCTRI Biomedical Innovation Program Funding Team Award ($40,000)	2018
AMIA National Student Design Competition Team Award (3rd place)	2016
National Library of Medicine Pre-Doctoral Training Fellowship Award	2015

TEACHING, MENTORING, AND SERVICE

Program Committee	Machine Learning in Computational Biology (MLCB)	2019
Team Lead	Simulation Team, CSBC Junior Investigator Project	2019
Lecturer	"Neural Networks in a Nutshell", OCSSB Lecture Series, *OHSU*	2019
Lecturer	"Deep Learning in Biomedicine", CDCB Lecture Series, *OHSU*	2018-2019
Judge	Intel Northwest Science Expo	2016-2018
Teaching Assistant	ECE 203: Analog Circuit Analysis, *Portland State University*	2015
Teaching Assistant	ECE 102: Engineering Programming, *Portland State University*	2015
Judge	FIRST Robotics Design Competition	2014-2017

INTELLECTUAL PROPERTY

Title	**Application Number**	**Filing Date**
Translation of Images of Stained Biological Material	62/787,088	December 31, 2018
Translation of Images of Stained Biological Material	62/885,777	August 12, 2019

REFERENCES

Young Hwan Chang, PhD — PhD Mentor
Principal Investigator, Quantitative BioImaging Laboratory — *Oregon Health & Science University*
chanyo@ohsu.edu

Joe W. Gray, PhD — PhD Committee Member
Director, OHSU Center for Spatial Systems Biomedicine — *Oregon Health & Science University*
grayjo@ohsu.edu

Christopher Corless, MD, PhD — PhD Committee Member
Executive Director, Knight Diagnostic Laboratories — *Oregon Health & Science University*
corlessc@ohsu.edu

Laura M. Heiser, PhD — PhD Committee Chair
Professor, Biomedical Engineering — *Oregon Health & Science University*
heiserl@ohsu.edu