GURMAN GILL

Email: gurman.gill@sonoma.edu   Darwin 116G, Sonoma State University

Tel: +1 707 664 2806   Rohnert Park, CA 94928

EDUCATION

McGill University, Montreal, Canada   **Sep. 2003 – May 2009**

Ph.D. in Electrical Engineering

Advisor :   Prof. M. Levine

TEACHING EXPERIENCE

Assistant Professor of Computer Science, Sonoma State University, USA **August 2015 – Present**

Teaching Programming I (CS 115), Programming II (CS 215), Discrete Structures (CS 242), Game Programming (CS 330), Team Programming (CS 349), Object Detection (CS 385) and Algorithms (CS 415).

Teaching Awards and Honors

Piazza Power User   **2017-2019**

Piazza is a free platform to manage class Q&A and is designed to simulate real class discussion.

- Recognized by Piazza as a top user and for empowering students through community.

Virtual Reality Immersive Learning Program   **Spring 2019 Semester**

This is a campus-wide initiative where goal is to employ virtual reality (VR) modalities to supplement or enhance information learned in the classroom.

- Participating in the "Development track" of this program.
- Incorporating Virtual reality (VR) in Game Programming course (CS 330).
- Participant at the annual Game Developer Conference (GDC) in March 2019.

Participant in the IntroCS POGIL Project (NSF Funded)   **Fall 2018 Semester**

POGIL: "Process Oriented Guided Inquiry Learning" is an evidence-based instructional strategy

- Employed POGIL in CS 115 to study how it impacts student learning and engagement.

Best ePortfolio award: CSU 2017-18 Course Redesign with Technology (CRT)   **June 2018**

- Recognized at the annual meeting of the CRT awardees.
- ePortfolio contained implementations, assessment methods, and outcome measures developed in redesigning programming I (CS 115).
- Link to ePortfolio: https://bit.ly/2FCJi5X

Nomination for Excellence in Teaching Award   **2017-2019**

- Nominated for academic year 2019-20, 2018-19 and 2017-18.

Professional Development

POGIL Northeast Regional Workshop   **July 2018**

    Participated in 4-day workshop to learn and facilitate Process Oriented Guided Inquiry Learning (POGIL) activities in classroom as it pertains to Computer Science.

Unintended Gender Bias Workshop   **Oct. 2017**

    Learned evidence-based strategies to reduce impact of implicit gender bias

POGIL Northwest Regional Workshop   **July 2017**

    Participated in 3-day workshop to learn and facilitate Process Oriented Guided Inquiry Learning (POGIL) activities in classroom.

CSU 2017-18 Course Redesign with Technology (CRT) Summer Institute   **June 2017**

    Completed a 5-day workshop as part of course redesign award for programming I (CS 115).

Association of College and University Educators (ACUE) online courses   **August 2016 – May 2017**

    Completed 5 courses towards Certificate in *Effective College Instruction*.

Open Educational Resources (OER) Summer Institute (Faculty Center, SSU)   **May 2017**

    Methods and resources to incorporate affordable learning material in courses

Redefining the College Lecture program, Sonoma State University   **August 2015 – May 2016**

    Implementing techniques for actively engaging students.

SCHOLARLY EXPERIENCE

Selected Posters and Presentations with SSU Undergraduate Students

J. Bautista-Martinez, S. Penna and **G.Gill**, Applications of Convolutional Neural Network Model for classifying Interstitial Lung Disease images from Computed Tomography scans. **Selected to represent Sonoma State University** (acceptance rate ~43%) at the 33rd Annual CSU Student Research Competition, CSU Fullerton, April 2019.

S. Penna, C. Havranek and **G.Gill**, A computational framework based on convolutional neural network for classifying interstitial lung disease in computed tomography scans, Student poster presentation at CSUPERB annual symposium **(acceptance rate ~74% across all CSUs),** Jan 2019.

B. Cogan, M. Puryear and **G.Gill**, Towards building a geological cyber-infrastructure: classifying sigma-clast images in photomicrographs, Student poster presentation at CCSC Southwest Region conference, March 2018 (**Recipient of Best poster award**) and at SSU Science Symposium of Research and Creativity, May 2018. (PDF)

J. Meixensperger, S. Perry and **G.Gill**, Performance of traditional image processing and convolutional neural network in classifying interstitial lung disease, Student poster presentation

at CCSC Southwest Region conference, March 2018 (**Recipient of 2nd Best poster award**) and at SSU Science Symposium of Research and Creativity, May 2018 **(Recipient of the "Bright Idea" award**). (PDF)

J. Hagle and **G.Gill**, Using pre-trained convolutional neural networks to classify wildlife animals, Student poster presentation at CCSC Southwest Region conference, March 2018 and at SSU Science Symposium of Research and Creativity, May 2018. (PDF)

J. Granados and G.**Gill**, Using pre-trained convolutional neural networks to classify interstitial lung diseases in computed tomography scans, Student poster presentation at CSUPERB annual symposium **(acceptance rate ~71% across all CSUs),** January 2018. (PDF)

S. Nadendla, J. Granados and **G. Gill**, Using Deep Learning to Classify Animals in the Wild, *Poster presentation at SHIP research symposium*, September 2017

C. Calloway, A. Pineda and **G. Gill**, Object Classification using machine learning on fMRI scans, *Poster presentation at SSU research symposium*, May 2017

C. Calloway, A. Pineda and **G. Gill**, Object Classification using machine learning on fMRI scans, *Poster presentation at SHIP research symposium*, September 2016

N. Shively, **G. Gill** and R. Balakumar, EEG Signal Processing: Understanding Brainwaves through Machine Learning, *Poster presentation at CSU research competition*, April 2016

A. Smith and **G. Gill**, Computational classification techniques for neuroimaging: A machine learning based approach, *Poster presentation at CSU research competition*, April 2016

Peer-Reviewed Publications

(**Revision in progress**) J. Granados, C. Halle and **G. Gill**, Classifying False Alarms In Camera Trap Images Using Convolutional Neural Networks, *First submitted to* Wildlife Society Bulletin

G. Gill and R.R. Beichel, An approach for reducing the error rate in automated lung segmentation*, Computers in Biology and Medicine*, vol. 76, pages 143-153, Sep. 2016

G. Gill and R. R. Beichel, Lung Segmentation in 4D CT Volumes based on Robust Active Shape Model Matching, *International Journal of Biomedical Imaging*, vol. 3015, Article ID 125648, 9 pages, Sep. 2015.

G. Gill and R. R. Beichel, Segmentation of Lungs with Interstitial Lung Disease in CT Scans: A TV-L1 Based Texture Analysis Approach, *Advances in Visual Computing,* LNCS 8887, pp. 511-520, 2014.

G. Gill, M. Toews and R. R. Beichel, Robust Initialization of Active Shape Models for Lung Segmentation in CT Scans: A Feature-Based Atlas Approach, *International Journal of Biomedical Imaging*, vol. 2014, Article ID 479154, 7 pages, 2014. doi:10.1155/2014/479154

G. Gill, C. Bauer and R. R. Beichel, A Method for Avoiding Overlap of Left and Right Lungs in Shape Model Guided Segmentation of Lungs in CT Volumes, *Medical Physics*, Vol. 41, 101908, 2014, doi: 10.1118/1.4894817

G. Gill, M. Toews and R. R. Beichel, An Automated Initialization System for Robust Model-Based Segmentation of Lungs in CT Data, *5th International Workshop on Pulmonary Image Analysis*, pp. 111-122, 2013.

G. Gill and M. Levine, Multi-View Object Detection based on Spatial Consistency in a Low Dimensional Space, *German Association for Pattern Recognition*, LNCS 5748, pp. 211-220, 2009.

G. Gill and M. Levine, Incorporating Shape Features in an Appearance-Based Object Detection System, *Computer Analysis of Images and Patterns*, LNCS 5702, pp. 269-276, 2009.

G. Gill and M. Levine, A Single Classifier for View-Invariant Multiple Object Class Recognition, *British Machine Vision Conference*, volume 1, pages 257-266, 2006.

Scholarly Awards

Award Type	Title of the award / Details of the award	Award Amount	Period of Award
SSU RSCAP	Medical Imaging: Classification of Interstitial Lung Disease in Chest CT Scans	$6500	June 2019 – May 2020
SSU Koret award	Machine learning techniques in Geosciences and medical imaging	$9500	Nov. 2017 – May 2018
SSU Norwick award	Deep learning for classifying animals in SSU preserves	$1000	Jan. 2018 – May 2018
Co-PI in NSF award. PI: Dr. Mookerjee (Geology).	EarthCube Data Infrastructure: A unified experimental-natural digital data system for analysis of rock microstructures.	$93,791	Dec 2017 – August 2019
SSU RSCAP Fellowship award	Deep learning for classifying animals in the wild.	$3000	Summer 2017
SST Dean's award	Deep learning for classification of Interstitial Lung Disease in chest CT scans	$2000	Summer 2017
NSF Stepping-up-STEM (S3) award	Object classification using machine learning on fMRI scans	$3000	Summer 2016

SERVICE

University Service

Advising Re-design Implementation Team   Spring 2019 – Present

- Part of the university working group to implement the Advising Re-design for Fall 2019.

Academic Advising Subcommittee, Sonoma State University   Fall 2017 – Present

- Representing School of Science and Technology in the university's Academic advising subcommittee

CS Major Advising, Department of Computer Science   Fall 2017 – Present

- Supporting 66 students as a CS advisor

Computer Science Tenure Track Faculty Hiring Committee   Jan – March 2018

- One of four committee members to recruit a new faculty member

School of Science and Technology Curriculum committee   August 2015 – May 2017

- Examining program reviews and course change proposals (addition, deletion, modification)

University of Iowa Postdoc Association (UIPDA), Iowa City

- Secretary/Treasurer and Professional Development Committee Chair   2014-2015

Community Service

Science of the Soul Study Center, Petaluma local chapter

- Assisted in organization of annual event that hosted 10000 people   April 2017
- Managing audio board at main hall and translation booth   Feb 2016- Present

Invited Panelist at the Global AI Summit, SOMO village, Rohnert Park   May 2017

- Organized by Tech Bay Area Advocates to create tech ecosystem in Sonoma County

Synopsys-Sonoma County STEAM showcase   March 2017

- Evaluating projects of 5 student teams

Synopsys-Sonoma County Science Fair   March 2016

- Judging posters of about 12 student teams in the "Cognitive Science" category

Science of the Soul Study Center, Montreal and Iowa City (Local Chapters)

- Quality Assurance lead for software development projects   March 2010 – Sep. 2016

Academic Reviewer

Computers and Electrical Engineering (CEE)   2017

Indian Conference on Computer Vision, Graphics and Image Processing   2016

Journal of Biomedical and Health Informatics (JBHI)   2015

Scientific World Journal (Hindawi)   2015

Computers and Electrical Engineering (CEE)   2014

Special Interest Group on Computer Science Education (SIGCSE)   2014