Yuqi Tan

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Summary

I am a data-driven computational biologist. I implement machine learning, statistical analysis, and cloud computing techniques on big data, such as next generation sequencing, to develop computational tools that I apply to stem cell engineering and tumor heterogeneity research. I am experienced in data visualization, including developing interactive web applications for data display. Additionally, I have strong communication, presentation, and leadership skills as demonstrated through teaching at various levels, giving talks at conferences, and leading graduate student groups.

Education

Aug 2015-now	**Johns Hopkins University, School of Medicine** BCMB PhD program, computational biology focus
Jan-May 2013	**Brown University** Neuroscience and Biology, GPA: 4/4
Sept 2010-Jul 2014	**S.H. Ho College, The Chinese University of Hong Kong** First Class Honor, Bachelor of Science, Cell and Molecular Biology

Publications

- **Tan** and Cahan. SingleCellNet: a computational tool to classify single cell RNA-Seq data across platforms and across species. *Cell Syst*. 2019 Jul 17. pii: S2405-4712(19)30199-1
- Radley, Schwab, **Tan**, Kim, Lo and Cahan. Assessing engineered cells using CellNet and RNA-Seq. *Nat Protoc*. 2017 12:1089-1102
- Kumar, **Tan** and Cahan. Understanding development and stem cells using single cell-based analyses of gene expression. *Development*. 2017 144: 17- 32
- Cui, Zhao, Xie, Wong, Wang, Gao, Ding, **Tan**, Ueda, Zhang and Jiang. MON1/CCZ1-mediated Rab7 activation regulates tapetal PCD and pollen development in Arabidopsis. *Plant Physiol*. 2017 Jan;173(1):206-218
- Mayer, Hu, Wang, Cardenas, **Tan**, Pan and Bednarek, SCD1 and SCD2 Form a Complex that Functions with the Exocyst and RabE1 in Exocytosis and Cytokinesis. *Plant Cell* 00409.2017
- James, Gu, Ramirez-Vizcarrondo, Hasan, Truszkowski, **Tan**, Oupravanh, Khakhalin and Aizenman. Valproate-induced neurodevelopmental deficits in *Xenopus laevis* tadpoles. *J Neurosci*. 2015 Feb 18;35(7):3218-29

Professional Skills:

Theoretical knowledge/courses: Methods in Biostatistics; Statistical Machine Learning; Data Structure; Computational Genomics; Next Generation Sequencing analysis; Single Cell RNA Sequencing analysis; Cell Biology; Genetics; Transcriptomics; Epigenetics; Personalized medicine; Cancer genomics

Programming skills: R, Java, Cloud Computing (AWS), python (numpy, scikit-learn, TensorFlow), HTML

Spoken languages: English, Mandarin and Cantonese

Research Experiences

Jun-Aug 2014 **Vienna Biocenter BioCenter Summer research with Dr. David Keays, Austria**
Conducted project to identify somatic mutations responsible for microcephaly from trio-

exome sequencing and sequentially investigate expression of MAST1/2 during mouse embryonic brain development

Sept 2013-Jun 2014 **Research assistant of Prof. Jiang Liwen, CUHK, Hong Kong**
Designed research project to characterize Rab7's roles in the protein trafficking (fusion of autophagosome to lysosome) via confocal imaging and sequential image analysis

May-Aug 2013 **Honorary fellow with Prof. Sebastian Bednarek, University of Wisconsin-Madison, USA**
Led project to identify and characterize protein-protein interaction (SCD1 and RabE) using genetic, biochemical and imaging approaches

Jan-May 2013 **Research assistant of Prof. Carlos Aizenman, Brown University, USA**
Characterized and statistically analyzed tectum neurons morphological changes after Valproic acid treatment with Confocal Microscopy and sequential image analysis

Leadership Experiences

2018 - 2019 **Biomedical Engineering Extramural Development in Graduate Education**
Internship Liaison
Match interdisciplinary PhD students with desire internships
Building events for career developments

2017 - 2019 **BCMB Colloquium Team**
Team Leader
Organize symposiums for PhD students (over 400 participants annually) to communicate their research
Design survey and analyze data to give presenters quantitative feedback

Presentation Experiences

Conferences:

- Tan. Oral presentation at Biochemistry Cellular Molecular Biology annual retreat (2019, Cambridge MD)
- Tan and Cahan. Oral presentation at International Society for Stem Cell Research Annual Meeting (2019, Los Angles)
- Tan. Invited talk at Cell Molecular Biology Symposium at Chinese University of Hong Kong (2018, Hong Kong)
- Tan and Cahan. Poster presentation at International Society for Stem Cell Research Annual Meeting (2017, Boston)

Teaching:

Jul 2019 **Biomedical Engineering: Topics in Stem Biology**
Instructor
Teach stem cell biology, developmental biology and computational tools associated to 27 high school students

Jan-May2018 **Computational Stem Cell Biology**
Teaching assistant
Assist 20 undergraduate and graduate students in developing and teaching of fundamental stem cell biology, cell identity, pluripotency, cell decision making and trajectory inferences

2017-2019 **Computational Biology and Bioinformatics**
Teaching assistant
Introduce 90 graduate students to basic high throughput analysis tools

2018-2019 **Practical Genomics**
Teaching assistant
Assist in a large classroom setting to teach researchers how to apply genomics technique in research