

Tuan Trieu

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Education

- Ph.D. in Computer Science, University of Missouri-Columbia, USA, 2017
- M.S. in Computer Science, Ritsumeikan University, Japan, 2012
- B.S in Information Technology, Hanoi University of Science and Technology, Vietnam, 2007

Work Experience

Postdoctoral Associate in Computational Biomedicine, Weill Cornell Medicine School, 01/2018 – Present

- Detecting, characterizing and predicting 3D genome alterations caused by structural variants
- Investigating the heterogeneity of melanoma as a result of the cell of origin

Graduate Research Assistant at University of Missouri-Columbia, 2012 – 2017

- Developed methods to reconstruct 3D genome models:
 - I derived constraints from Hi-C contacts data and solve the problem of 3D genome reconstruction as a non-convex optimization problem.
 - By approximating physical distances from Hi-C contacts data, I converted the problem into a distance geometry problem and solved it through optimization.
- Working on a method to build high-resolution 3D genome models where number of constraints is small and feasible space is large.
- Building a comprehensive tool with GUI functions to process, analyze Hi-C data and 3D genome models.

Software Engineer, FPT Software, Hanoi, Vietnam, 2007 – 2010

- Developed and maintained Java EE web applications for a seaport

Publications

- **Tuan Trieu**, Jianlin Cheng: Hierarchical Reconstruction of High-Resolution 3D Models of Human Chromosomes, **BMC Genomics** (in submission)
- **Tuan Trieu**, Jianlin Cheng: 3D genome structure modeling by Lorentzian objective function, **Nucleic acids research**, 2017
- B Adhikari*, **Tuan Trieu***, J Cheng: Chromosome3D: reconstructing three-dimensional chromosomal structures from Hi-C interaction frequency data using distance geometry simulated annealing, **BMC Genomics**, 2017 (* co-first author)
- Jackson Nowotny, Avery Wells, Oluwatosin Oluwadare, Lingfei Xu, Renzhi Cao, **Tuan Trieu**, Chenfeng He, Jianlin Cheng: GMOL: An Interactive Tool for 3D Genome Structure Visualization, **Scientific reports**, 2016

- Jackson Nowotny, Sharif Ahmed, Lingfei Xu, Oluwatosin Oluwadare, Hannah Chen, Noelan Hensley, **Tuan Trieu**, Renzhi Cao, Jianlin Cheng: Iterative reconstruction of three-dimensional models of human chromosomes from chromosomal contact data, **BMC Bioinformatics**, 2015
- **Tuan Trieu**, Jianlin Cheng: MOGEN: a tool for reconstructing 3D models of genomes from chromosomal conformation capturing data, **Bioinformatics**, 2015
- **Tuan Trieu**, Jianlin Cheng: Large-scale reconstruction of 3D structures of human chromosomes from chromosomal contact data, **Nucleic Acids Research**, 2014

Programming Languages

- Java, C#, C++, Python, Scala, R, Matlab, SQL (Oracle, MS SQL, MySQL)

Awards

- First prize winner (in a team of three members) in Microsoft Coding Competition at Mizzou Fall 2016
- First prize winner (in a team of three members) in Mizzou Computer Science Annual Programming Contest 2013 sponsored by CARFAX

Professional Certificates

- Oracle Certified Professional, Java SE 6 Programmer

Relevant Courses

- Design and Analysis of Algorithms II (A+)
- Nonlinear Optimization (A+)
- Computational Optimization Methods (A+)
- Introduction to Big Data with Apache Spark – by edX (96%)
- Machine Learning - by Coursera (100%)

References

Dr. Jianlin Jack Cheng

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Dept. of Electrical Engineering & Computer Science
Informatics Institute
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Dr. Yi Shang

Professor
Associate Chair and Director of Graduate Studies
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Dr. Mikhail G. Dozmorov

Assistant Professor
Department of Biostatistics
Virginia Commonwealth University, Richmond, VA
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