Curriculum Vitae – Yang Yang

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Research Interests

- Computational Biology, Genomics, and Systems Biology
- Machine Learning and Applications in Biomedicine

Education and Training

- 01/2016 – Present, **Carnegie Mellon University**, Pittsburgh, PA, USA
  PhD Student in Computational Biology (GPA: 4.03), School of Computer Science, Advisor: Dr. Jian Ma
  - Thesis Committee: Jian Ma, Ziv Bar-Joseph, Anne-Ruxandra Carvunis, David Haussler
- 03/2019 – Present, **Carnegie Mellon University**, Pittsburgh, PA, USA
  MS Student in Machine Learning (GPA: 4.0), School of Computer Science
  (Secondary Degree Program)
- 08/2015 – 12/2015, **University of Illinois at Urbana-Champaign**, Urbana, IL, USA
  PhD Student in Computer Science (GPA: 4.0), Department of Computer Science, Advisor: Dr. Jian Ma
  (moved to CMU School of Computer Science with my advisor in 01/2016)
- 09/2012 – 07/2015, **Tsinghua University**, Beijing, China
  M.S. in Control Science and Engineering (GPA: 90.5/100), Department of Automation,
  Advisor: Dr. Xiangyang Ji
  - Thesis: Research on Key Technologies of Transcriptome Reconstruction and Analysis based on Information Channel Model
- 08/2008 – 07/2012, **Tsinghua University**, Beijing, China
  B.E. in Automation (GPA: 91.2/100, Top 5% of class), Department of Automation
  - Thesis: Research on Occlusion Detection based Image Rendering Method
    (Advisor: Dr. Qionghai Dai)

Publications

Peer-Reviewed Articles

1. **Yang Y**, Zhang Y, Ren B, Dixon J, and Ma J. Comparing 3D genome organization in multiple species using Phylo-HMRF. ***Cell Systems***, 8(6):494-505.e14, 2019.
   - Early version appeared in *Proceedings of the 23rd Annual International Conference on Research in Computational Molecular Biology* (**RECOMB** 2019).
2. Singh S, **Yang Y**, Póczos B, and Ma J. Predicting enhancer-promoter interaction from genomic sequence with deep learning. ***Quantitative Biology***, 7(2):122-137, 2019.
3. **Yang Y**, Gu Q, Zhang Y, Sasaki T, Crivello J, O'Neill R, Gilbert DM, and Ma J. Continuous-trait probabilistic model for comparing multi-species functional genomic data. ***Cell Systems*** 7(2):208-218.e11, 2018.
   - Early version appeared in *Proceedings of the 22nd Annual International Conference on Research in Computational Molecular Biology* (**RECOMB** 2018).
   - Preliminary version presented in 2017 *NIPS Workshop on Machine Learning in Computational Biol-*

ogy.

- *CMU News* (06/20/2018) "Computational method puts finer point on multispecies genomic comparisons" (also in *ACM TechNews* and *NSF News*)
- Selected as one of the "RECOMB/ISCB Regulatory Systems Genomics Reading List" (2019).

4. Zhang R, Wang Y, **Yang Y**, Zhang Y, and Ma J. Predicting CTCF-mediated chromatin loops using CTCF-MP. In *Proceedings of the 26th Conference on Intelligent Systems for Molecular Biology* (**ISMB** 2018), **Bioinformatics**, 34(13):i133-i141, 2018.

5. **Yang Y**, Zhang R, Singh S, and Ma J. Exploiting sequence-based features for predicting enhancer-promoter interactions. In *Proceedings of the 25th Conference on Intelligent Systems for Molecular Biology* (**ISMB** 2017), **Bioinformatics**, 33(14):i252-i260, 2017.

- F1000Prime Recommended.

6. Deng Y*, Bao F*, **Yang Y**, Ji X, Du M, Zhang Z, Wang M, and Dai Q. Information transduction capacity reduces the uncertainties in annotation-free isoform discovery and quantification, **Nucleic Acids Research**, 45(15):e143, 2017. (*: equal contribution)

7. Ren Z, **Yang Y**, Bao F, Deng Y, and Dai Q. Directed adaptive graphical Lasso for causality inference, **Neurocomputing**, 173:1989-1994, 2016.

8. **Yang Y**, Deng Y, Ji X, and Dai Q. Log-sum heuristic recovery for automated isoform discovery and abundance estimation from RNA-Seq data. In *Proceedings of the 5th International Conference on Information Science and Technology (**ICIST**)*, 599-603, 2015. IEEE.

Patents

1. Dai Q and **Yang Y**. A rendering algorithm of virtual views, CN103150729B, Granted, 12/23/2015.
2. Ji X, **Yang Y**, and Dai Q. A 3D reconstruction method for outdoor scenes, CN103198524B, Granted, 08/12/2015.

Professional Experience

- 01/2016 – Present, Research Assistant, Computational Biology Department, School of Computer Science, Carnegie Mellon University, Pittsburgh, PA
- 08/2015 – 12/2015, Research Assistant, Carl R. Woese Institute for Genomic Biology, University of Illinois at Urbana-Champaign, Urbana, IL
- 09/2012 – 07/2015, Research Assistant, Broadband Network and Digital Media Lab, Tsinghua University, Beijing, China
- 06/2011 – 07/2011, Software Developer Intern, Computer Information Center, Planning and Engineering Institute, China National Petroleum Corporation (CNPC), Beijing, China

Teaching Experience

- 03/20/2019, Guest Lecture for Course: 02-710 Computational Genomics, Carnegie Mellon University
- 09/27/2018, Guest Lecture for Course: 02-512/02-712 Computational Methods for Biological Modeling and Simulation, Carnegie Mellon University
- 08/2017 – 12/2017, Teaching Assistant, School of Computer Science, Carnegie Mellon University. Course: 02-512/02-712 Computational Methods for Biological Modeling and Simulation.
- 01/2017 – 05/2017, Teaching Assistant, School of Computer Science, Carnegie Mellon University. Course: 02-601 Programming for Scientists.

Conference Presentations

- 11/12/2019, Comparing 3D genome organization in multiple species using Phylo-HMRF. Poster presentation. The first *Women in Computational Biology conference*, Janelia Research Campus/HHMI, Virginia, USA.
- 05/07/2019, Comparing 3D genome organization in multiple species using Phylo-HMRF. Talk presentation. *RECOMB* 2019, Washington D.C., USA.
- 07/10/2018, Continuous-trait probabilistic model for comparing multi-species functional genomic data.

Talk and Poster presentation. *ISMB* 2018: RegSys COSI (Regulatory and Systems Genomics Communities of Special Interest), Chicago, IL, USA.

- 12/09/2017, Continuous-trait probabilistic model for comparing multi-species functional genomic data. Poster presentation. The Conference and Workshop on Neural Information Processing Systems (*NIPS*) 2017: Workshop on Machine Learning in Computational Biology, Long Beach, CA, USA.

Honors and Recognition

- Selected to attend the "EECS Rising Stars" workshop (2019)
- *Cell Syst* 2018 paper among the "RECOMB/ISCB Regulatory Systems Genomics Reading List" (2019)
- Selected to attend "Women in Computational Biology" conference organized by Janelia/HHMI (2019)
- Outstanding Research Accomplishment Award, CMU SCS PhD Program in Computational Biology (2018)
- 1st Prize, the 6th "Philips Cup" Medical Instrument Innovative Design Competition (2013)
- Excellent Graduate, Tsinghua University (2012)
- Distinguished Bachelor Degree Thesis, Tsinghua University (2012)
- National Scholarship (2011) (Top 0.2% of university students awarded nationwide in China)
- "Friends of Tsinghua – Schneider Electric (China)" Scholarship (2010)
- 1st Prize, the 1st "NI (National Instruments) Cup" Automatic Control Design Competition (2009)
- 2nd Prize, the 26th National Physics Contest for College Students in parts of China (2009)
- "Friends of Tsinghua – China Oilfield Services Limited (COSL)" Scholarship (2009)
- Freshman Scholarship, Tsinghua University (2008)