Hyundoo Jeong

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CURRENT POSITION	**Chosun University**, Gwangju, South Korea Assistant professor, Electronic Engineering	Sept. 2018 - Present

EDUCATION & TRAINING	**Baylor College of Medicine**, Houston, Texas Postdoctoral research associate Advisors: Dr. Zhandong Liu and Dr. Joshua M. Shulman	Aug. 2017 - Aug. 2018
	Texas A&M University, College Station, Texas Ph.D., Electrical and Computer Engineering Advisors: Dr. Byung-Jun Yoon and Dr. Xiaoning Qian	Sept. 2012 - Aug. 2017
	Seoul National University, Seoul, South Korea M.S., Electrical Engineering and Computer Science Advisor: Dr. Jae Hong Lee	Mar. 2007 - Feb. 2009
	Inha University, Incheon, South Korea B.S., Electronic Engineering Magna Cum Laude (Ranked in 2 out of 199 students)	Mar. 1999 - Feb. 2007

RESEARCH INTERESTS

Bioinformatics, single cell genomics, computational network biology, signal processing, machine learning, probabilistic graphical models, statistical network analysis, image processing, and large-scale data analysis.

HONORS AND AWARDS

Young Scholar Research Award, Korean Institute of Intelligent Systems — Fall 2018

Travel Grants
- 14th annual MCBIOS conference, Little Rock, AR — Mar. 2017
- NSF supported grant for 3rd CNB-MAC workshop, Seattle, WA — Oct. 2016
- 13th annual MCBIOS conference, Memphis, TN — Mar. 2016
- NSF supported grant for 2nd CNB-MAC workshop, Atlanta, GA — Sept. 2015
- NSF supported grant for XSEDE15 conference, St. Louis, MO — July 2015
- 12th annual MCBIOS conference, Little Rock, AR — Mar. 2015

Scholarship
- Graduate research assistantship, Texas A&M University Sept. 2013 - Aug. 2017
- $1,000 scholarship with an in-state tuition waive, Texas A&M University — 2012
- Samsung education scholarship — 2008
- BK21 (Brain Korea) research scholarships, National Research Foundation of Korea — 2007, 2008
- Honor scholarships (six semesters), Inha University — 2001, 2005, and 2006
- English scholarship, Inha University — 2005

Magna Cum Laude, Inha University — 2007

RESEARCH GRANT

Network alignment and clustering algorithms for comparative analysis of dynamic biological networks — Mar. 2019 - Feb. 2022

Research grant from National Research Foundation of Korea : 90,000,000 KRW (30,000,000 KRW / year)

Developing comparative network analysis algorithms for dynamic biological networks

RESEARCH EXPERIENCE	**Jan and Dan Duncan Neurological Research Institute** Houston, TX
	Postdoctoral Research Associate Aug. 2017 - Aug. 2018
	Developed effective algorithms to analyze single cell RNA sequencing
	Genomic Signal Processing Lab., Texas A&M University College Station, TX
	Research Assistant Sept. 2013 - Aug. 2017
	Developed global network alignment and querying algorithms
	AgriLife Research, Texas A&M University College Station, TX
	Research Assistant Sept. 2013 - Aug. 2014
	Developed a quality assessment pipeline for de novo transcriptome assembly
	Institute of New Media & Communications Seoul, South Korea
	Research Assistant Mar. 2007 - Jan. 2009
	Performed research on wireless communications (PHY layer)

INDUSTRIAL EXPERIENCE	**Patent Information Promotion Center** Seoul, South Korea
	Patent Search Professional Feb. 2012 - June 2012
	Searched and reviewed technical documents, and made review reports
	Samsung Electronics Suwon, South Korea
	Software Engineer at Mobile Communication Division Feb. 2009 - Mar. 2011
	Developed smart phone device drivers (Windows platform)

JOURNAL IN PREPARATION

1. Y. Wang[†], **H. Jeong**[†], X. Qian, and B.-J Yoon, "ClusterM: a scalable algorithm for computational prediction of conserved protein complexes across multiple protein interaction networks," will be submitted. (manuscript is available) [†]Equally contributed

JOURNAL IN REVIEW

1. **H. Jeong** and Z. Liu, "PRIME: Probabilistic imputation and smoothing for single cell RNA sequencing," under revision after first round review at Bioinformatics.

2. H.-M. Woo[†], **H. Jeong**[†], and B.-J. Yoon "NAPAbench 2: a network synthesis algorithm for generating realistic PPI network families," submitted. [†]Equally contributed

JOURNAL PUBLICATIONS

1. C.-C Chen, **H. Jeong**, X. Qian, and B.-J Yoon, "TOPAS: network-based structural alignment of RNA sequences," Accepted to Bioinformatics.

2. N. Ghaffari[†], O. A. Arshad[†], **H. Jeong**[†], J. Thiltges, M.F. Criscitiello, B.-J. Yoon, A. Datta, and C. D. Johnson, "Examining de novo transcriptome assemblies via a quality assessment pipeline," IEEE/ACM Transaction on Computational Biology and Bioinformatics, vol.15, no.2, pp. 494 - 505, Mar. 2018. [†]Equally contributed

3. **H. Jeong**, X. Qian, and B.-J Yoon, "CUFID-query: random walk based network querying through network flow estimation," BMC Bioinformatics, 18(Suppl. 14):12, 2017.

4. **H. Jeong** and B.-J Yoon, "SEQUOIA: significance enhanced network querying through context-sensitive random walk and minimization of network conductance," BMC Systems Biology, 11(Suppl. 3):20, 2017.

5. **H. Jeong**, X. Qian, and B.-J Yoon, "Effective comparative analysis of protein-protein interaction networks by measuring the steady state network flow using a Markov model," BMC Bioinformatics, 17(Suppl. 13):395, 2016.

6. **H. Jeong** and B.-J Yoon, "Effective estimation of node-to-node correspondence between different graphs," IEEE Signal Processing Letters, vol. 22, no. 6, pp. 661-665, June 2015.

7. **H. Jeong** and B.-J Yoon, "Accurate multiple network alignment through context-sensitive random walk," BMC Systems Biology, 9(Suppl. 1):S7, 2015.

CONFERENCE
PUBLICATIONS

1. H.-M. Woo[†], **H. Jeong**[†], and B.-J Yoon, "Comprehensive updates in network synthesis models to create an improved benchmark for network alignment algorithms," 9th ACM-BCB, Washington, DC, USA, Aug. 2018. [†]Equally contributed

2. **H. Jeong** and B.-J Yoon, "SEQUOIA: Significance enhanced network querying through context-sensitive random walk and minimization of network conductance," 7th ACM-BCB, Seattle, WA, Oct. 2016.

3. **H. Jeong** and B.-J Yoon, "Identifying molecular complexes in biological networks through context sensitive network querying," 6th ACM-BCB, Atlanta, GA, Sept. 2015.

4. **H. Jeong** and B.-J Yoon, "Accurate multiple network alignment through context-sensitive random walk," Asian Pacific Bioinformatics Conference (APBC) 2015, Hsinchu, Taiwan, Jan. 2015.

5. N. Ghaffari[†], O. A. Arshad[†], **H. Jeong**[†], et al., "De novo transcriptome assemblies and annotation for pacific whiteleg shrimp," IEEE Global Conference on Signal and Information Processing (GlobalSIP) 2014, Atlanta, GA, USA, Dec. 2014. [†]Equally contributed

6. **H. Jeong** and B.-J Yoon, "A novel context-sensitive random walk model for estimating node correspondence between two biological networks," 5th ACM-BCB, Newport Beach, CA, USA, Sept. 2014.

7. **H. Jeong**, J. H. Lee, and H. Seo, "Resource allocation for uplink multiuser OFDM relay networks with fairness constraints," IEEE Vehicular Technology Conference (VTC) 2009 Spring, Barcelona, Spain, Apr. 2009.

INVITED TALKS

1. **H. Jeong**, "Network-based signal processing in bioinformatics," Korean Institute of Intelligent Systems Fall Conference, Wonju, S. Korea 2018.

ORAL & POSTER
PRESENTATIONS

1. **H. Jeong**, X. Qian, and B.-J Yoon, "CUFID-query: Accurate network querying through estimation of network flow between query and target networks based on random walk," 14th Annual Conference of the MidSouth Computational Biology and Bioinformatics Society (MCBIOS), Little Rock, AR, USA, Mar. 2017.

2. **H. Jeong**, X. Qian, and B.-J Yoon, "CUFID-multialign: Enhanced multiple alignment of biological networks through estimation of steady-state flow using a random walk model," 14th Annual Conference of the MidSouth Computational Biology and Bioinformatics Society (MCBIOS), Little Rock, AR, USA, Mar. 2017.

3. **H. Jeong** and B.-J Yoon, "SEQUOIA: Significance enhanced network querying through context-sensitive random walk and minimization of network conductance," 3rd Int'l Workshop on Computational Network Biology: Modeling, Analysis, and Control (CNB-MAC), Seattle, WA, USA, Oct. 2016.

4. B.-J Yoon, and **H. Jeong**, "Predicting potential functional module in biological networks through context-sensitive random walk based network querying," Qatar Foundation-Annual Research Conference (QF-ARC), Doha, Qatar, Mar. 2016.

5. **H. Jeong** and B.-J Yoon, "Effective comparative analysis of protein-protein interaction networks by measuring the steady state network flow using a Markov model," 13th Annual Conference of the MidSouth Computational Biology and Bioinformatics Society (MCBIOS), Memphis, TN, USA, Mar. 2016.

6. C.-C Chen, **H. Jeong**, X. Qian, and B.-J Yoon, "Pairwise global structural alignment for RNA sequences through topological networks," 13th Annual Conference of the MidSouth Computational Biology and Bioinformatics Society (MCBIOS), Memphis, TN, USA, Mar. 2016.

7. **H. Jeong** and B.-J. Yoon, "Identifying molecular complexes in biological networks through context sensitive network querying," 2nd Int'l Workshop on Computational Network Biology: Modeling, Analysis, and Control (CNB-MAC), Atlanta, GA, USA, Sep. 2015.

8. **H. Jeong**, O. A. Arshad, N. Ghaffari, J. Thiltges, P. Blood, M. F. Criscitiello, B.-J. Yoon, A. Datta, and C. D. Johnson, "Comparative de novo transcriptome assemblies for Pacific whiteleg shrimp empowered by XSEDE resources," Extreme Science Engineering Discovery Environment (XSEDE), Saint Louis, MO, USA, July 2015.

9. **H. Jeong** and B.-J Yoon, "Querying networks using context-sensitive random walk," 12th Annual Conference of the MidSouth Computational Biology and Bioinformatics Society (MCBIOS), Little Rock, AR, USA, Mar. 2015.

10. **H. Jeong** and B.-J. Yoon, "A novel context-sensitive random walk model for estimating node correspondence between two biological networks," Int'l Workshop on Computational Network Biology: Modeling, Analysis, and Control (CNB-MAC), Newport Beach, CA, USA, Sep. 2014.

11. **H. Jeong** and B.-J. Yoon, "A novel random walk model for comparing protein interactions networks," IEEE Int'l. Workshop on Genomic Signal Processing and Statistics (GENSIPS) 2013, Houston, TX, USA, Nov. 2013.

PATENTS

1. J. H. Lee and **H. Jeong** et. al "Method of allocating resources for cooperative diversity," 10-1523098, South Korea.

PROFESSIONAL ACTIVITY

Board member, Korea Institute of Intelligent Systems   2019 - Present
Board member, Korea Information and Communications Society   2019-Present
Member, IEEE (Institute of Electrical and Electronics Engineers)
Member, ACM (Association for Computing Machinery)

SERVICE

Reviewer
IEEE/ACM Transactions on Computational Biology and Bioinformatics, PLOS ONE, BMC Bioinformatics, Pattern Recognition Letters, ACM-BCB (2017), EURASIP Journal on Bioinformatics and Systems Biology, Journal of Biological Systems, and Communications for Statistical Applications and Methods.

Other
Korean Student Association at Texas A&M University   2014 - 2017
Student volunteer, XSEDE 2015   2015

TEACHING EXPERIENCE

Chosun University, Gwangju, South Korea   Sept. 2018 - Present
Spring 2019
- Electric Circuit 1
- Signals and Systems
- Object Oriented Programming (Programming language: C++)
- Introduction to Programming (Programming language: C)

Fall 2018
- Electric Circuit 2
- Introduction to Programming (Programming language: Python)
- Advanced Programming (Programming language: C)
- Digital Logic Lab.

Last updated: April 21, 2019