Curriculum Vitae

Inuk Jung (정인욱)

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Profile summary

I'm currently a postdoctoral Research Fellow at Seoul National Univerisity and affiliated with Bio & Health Informatics Lab and Bioinformatics Institute. I received a Ph.D. degree in Bioinformatics at the Life Science department in 2017. My research area focuses on developing machine learning algorithms and tools for analyzing high throughput next generation sequencing data from various organisms, such as, rice, ginseng, chicken, mouse and human.

Education

PostDoc. Research Fellow, Bioinformatics Institute, Seoul, Korea, 2017 - Present

PhD., Interdisciplinary Program in Bioinformatics, Seoul National University, Seoul, Korea, 2012 – 2017

- Research area: Bioinformatics
- Advisor: Sun Kim
- Thesis title: Clustering methods and approaches for the integrated analysis of protein coding and non-coding transcripts

M.Sc., Computer Science, Yonsei University, Seoul, Korea, 2005 - 2007

- Research area: Embedded systems, Operating systems for sensor networks
- Advisor: Hojung Cha
- Thesis title: RMon : a proactive sensor network management framework for the RETOS applications

PG Dip., Computer Science, Canterbury University, Christchurch, New Zealand, 2004

- Research topics: Programming and appliance of augmented reality algorithm in mobile phones (Nokia 6600/6620)

B.Sc., Computer Science, Canterbury University, Christchurch, New Zealand, 2001 - 2004

Publications (chronological order)

[At Seoul National University]

1. Hongryul Ahn, **Inuk Jung**, Heejoon Chae, Dongwon Kang, Sun Kim and Woosuk Jung
   "HTRgene: Integrating Multiple Heterogeneous Time-series Data to Investigate Cold and Heat Stress Response Signaling Genes in Arabidopsis", BMC Genomics 2018 [Accepted]
2. Sangsoo Lim, Sangseon Lee, **Inuk Jung**, Sungmin Rhee, Sun Kim
   "Comprehensive and critical evaluation of individualized pathway activity measurement tools on pan-cancer data", Briefings in Bioinformatics 2018 [Accepted and in press]
3. **Inuk Jung**, Hyejin Kang, Jan Uk Kim, Hyeonsook Chang, Sun Kim and Woosuk Jung.
   "The mRNA and miRNA transcriptomic landscape of Panax Ginseng under the high ambient temperature", BMC Systems Biology, 12(Suppl 2):27, 2018
4. Hongryul Ahn, **Inuk Jung**, Seon-Ju Shin, Jinwoo Park, Sungmin Rhee, Ju-Kon Kim, Woosuk Jung, Hawk-Bin Kwon, Sun Kim.
   "Transcriptional network analysis reveals drought resistance specific biological mechanisms underlying AP2/ERF transgenic rice species", Frontiers in Plant Science, 8:1044, 2016.
5. **Inuk Jung**, Kyuri Jo, Hyejin Kang, Hongryul Ahn, Youngjae Yu, Sun Kim
   "TimesVector: a vectorized clustering approach to the analysis of time series transcriptome data from multiple phenotypes", Bioinformatics, 33(23), 2017
6. **Inuk Jung**, Hongryul Ahn, Seon-Ju Shin, Jukon Kim, Hawk-Bin Kwon, Woosuk Jung and Sun Kim
   "Clustering and evolutionary analysis of small RNAs identify regulatory siRNA clusters induced under drought stress in rice", BMC Systems Biology, 10(Suppl 4):115, 2016
7. Seon-Ju Shin, Hongryul Ahn, **Inuk Jung**, Sungmin Rhee, Sun Kim, Hawk-Bin Kwon
   "Novel drought-responsive regulatory coding and non-coding transcripts from

Oryza Sativa L.", Genes & Genomics, 38(10), 2016

8. Kyuri Jo, **Inuk Jung**, Ji Hwan Moon, Sun Kim
   "Influence maximization in time bounded network identifies transcription factors regulating perturbed pathways", Bioinformatics, 32(12), 2016
9. **Inuk Jung**, Jong Chan Park, Sun Kim
   "piClust: A density based piRNA clustering algorithm", Computational Biology and Chemistry, 50, 2014

10. Heejoon Chae, **Inuk Jung**, Hyungro Lee, Suresh Marru, Seong-Whan Lee and Sun Kim,
    "Bio and health informatics meets cloud : BioVLab as an example", Health Information Science and Systems, 1:6, 2013

[At Yonsei University]

11. **Inuk Jung**, Hojung Cha,
    "RMTool: Component-Based Network Management System for Wireless Sensor Networks," 2007 IEEE Consumer Communications and Networking Conference (CCNC), Las Vegas, January 2007.
12. Hojung Cha, Sukwon Choi, **Inuk Jung**, Hyoseung Kim, Hyojeong Shin, Jaehyun Yoo, Chanmin Yoon,
    "RETOS: Resilient, Expandable, and Threaded Operating System for Wireless Sensor Networks," Proceedings of the 6th International Conference on Information Processing in Sensor Networks (IPSN 2007), Cambridge, Massachusetts, April 2007.
13. Wonwoo Jung, **Inuk Jung**, Sukwon Choi, Hojung Cha, Rhan Ha,
    "Improving Real-Time Data Delivery in Multi-Party Tracking Sensor Network Applications,"

[At LG Electronics]

14. Ronny Yongho Kim, **Inuk Jung**, Young Yong Kim,
    "An Improved Cross-Layering Design for IPv6 Fast Handover with IEEE 802.16m Entry Before Break Handover," IEICE Transactions on Fundamentals of Eelectronics Communications and Computer Sciences, E93A:8, 2010
15. {Ronny Yongho Kim, **Inuk Jung** – LG Electronics}, {Xiangying Yang – Intel}, {Chao-Chin Chou – Mediatek},
    "Advanced handover schemes in IMT-advanced systems," IEEE Communications Magazine, 48:8, 2010.

Written in Korean

1. 강혜진, **정인욱**, 정우석, 김선.
   “Spherical vector clustering 기법과 Support Vector Machine 을 이용한 한발관련 표현형이 다른 벼의 복수 시계열 Next Generation Sequencing 데이터의 분석”, 한국정보과학회 2015 년 동계학술발표회 논문집, Vol.2015, pp.651-653.
2. 서석준, 오민식, **정인욱**, 채희준, 김선
   “BioVLAB-클라우드 기반의 생물정보학 분석 시스템”, 정보과학회지, Vol.31, No.3, 2013 년 3 월, pp.108-114.
3. **정인욱**, 차호정
   "GUI 기반의 센서 네트워크 관리 도구," 한국정보과학회 2006 가을 학술발표논문집, 33:2(B), 2006.

Demonstrations

1. Hojung Cha, Sukwon Choi, **Inuk Jung**, Hyoseung Kim, Hyojung Shin, Jaehyun Yoo, Chanmin Yoon,
   "The RETOS Operaging System: Kernel, Tools and Applications," Proceedings of the 6th International Conference on Information Processing in Sensor Networks (IPSN 2007), Cambridge, MA, April 2007.

Awards

- Outstanding paper award (우수논문상), “TimesVector: a vectorized clustering approach to the analysis of time series transcriptome data from multiple phenotypes”, KSBSB 한국생물정보시스템생물학회, Nov. 2017
- Excellent dissertation award (박사 우수학위논문상), “Clustering methods and approaches for the integrated analysis of protein and non-coding transcripts”, Life Science Department, Seoul National University, Aug. 2017.
- “Outstanding Patent Awards” – Over 40 main authored, IEEE802.16m and LTE related, patents filed and under review.
- “WiMAX Forum Individual Contribution Award” – Leadership and contributions toward successful completion of the WiMAX Forum Release 2.0 (a.k.a. WiBro Evolution) Air Interface Specification

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Patents (US registered patents only)

- **Inuk Jung**, Jin Lee, Giwon Park, “Method for performing handover in broadband wireless access system”, 2011.05.27, 2015.09.01
- **Inuk Jung**, Jin Lee, Kiseon Ryu, Giwon Park, “Method and apparatus for transceiving control information and/or data to/from a base station via an anchor terminal in a wireless access system supporting machine-type communication”, 2011.07.22, 2016.04.05
- **Inuk Jung**, Jin Lee, Yongho Kim, Kiseon Ryu, “Method and apparatus for initial access to a network in a femto system”, 2011.06.08, 2015.02.17
- **Inuk Jung**, Jinsam Kwak, Kiseon Ryu, Wookbong Lee, “Traffic encryption key management for machine to machine multicast group”, 2011.12.08, 2015.10.13
- **Inuk Jung**, Jinsam Kwak, Kiseon Ryu, Wookbong Lee, “Method and apparatus for efficient zone switch operation in a broadband wireless access system”, 2011.09.14, 2015.05.26
- **Inuk Jung**, Jinsam Kwak, Kiseon Ryu, Wookbong Lee, “Method for controlling uplink power in a broadband wireless access system”, 2011.11.03, 2015.05.05
- **Inuk Jung**, Jinsam Kwak, Kiseon Ryu, Wookbong Lee, “Method of changing a zone in a broadband wireless access system”, 2011.09.14, 2015.01.06
- **Inuk Jung**, Kiseon Ryu, “Method and apparatus for transmitting a broadcasting service in a system that supports machine to machine communications”, 2011.04.05, 2015.01.27
- **Inuk Jung**, Kiseon Ryu, Jinsam Kwak, “Apparatus and method for updating control information of a target base station during handover operation in a broadband wireless communication system”, 2011.02.09, 2014.11.11
- **Inuk Jung**, Jinsam Kwak, Kiseon Ryu, Wookbong Lee, “EFFICIENT HANDOVER/SCANNING TRIGGER METHOD IN A BROADBAND WIRELESS ACCESS SYSTEM SUPPORTING A MULTICARRIER”, 2011.09.14, 2013.06.27
- **Inuk Jung**, Yongho Kim, Kiseon Ryu, “Method and apparatus for performing handover in consideration of authentication procedure”, 2010.12.08, 2016.05.24
- **Inuk Jung**, Yongho Kim, Kiseon Ryu, “Method and apparatus for performing handover in consideration of authentication procedure”, 2010.11.11, 2015.10.27
- **15 more co-authored patents**

Work Experience

Part time lecturer at Life Science Department, Seoul National University

- Time period: Sept. 2018 – Present
- Curriculum: Bioinformatics 2 (covers basic and advanced bioinformatics analysis techniques)

Postdocotral Research Fellow at Bioinformatics Institute, Seoul National University

- Time period: Sept. 2017 – Present
- Research area: Bioinformatics – Multi-omics integrative analysis of large scale breast cancer patient data

Associate Research Engineer at LG Electronics, Anyang, Korea,

- Time period: Sept. 2007 – 2011
- Research and development of cellular technologies for standard bodies for WiMAX 2.0 (i.e. IEEE802.16m) and LTE Rel. 10. The standard technologies that I've developed are in the domains of Layer 1 and 2 (PHY/MAC). Main research and development topics are mobility management and security provision.
- Acted as rapporteur lead for the IEEE802.16 TGm (http://www.ieee802.org/16/tgm/) Handover RG (Rapporteur Group), 2008-2009
- Acted as chair for the IEEE802.16 TGm Handover Ad-hoc group, 2009-2010
- Acted as chair for the WiMAX 2.0 TWG Handover/Security Ad-hoc group for profiling standard technologies, 2010 – 2011
- Acted as chair and editor for IEEE802.16 PPC (Project Planning Committee, http://wirelessman.org/ppc/index.html) on Hierarchical Networks, 2010 – 2011