Deokgun **Park**

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Education

University of Maryland *College Park, MD*
PH. D. IN COMPUTER SCIENCE *2014-2018*
- Dissertation: *Visual Analytics Approach for Open-ended Tasks in Text Mining*
- Committee: Niklas Elmqvist *(Advisor)*, Hal Daumé III, Bongshin Lee, Jaegul Choo, Hector Bravo Corrada

Purdue University *West Lafayette, IN*
M.S. IN INTERDISCIPLINARY ENGINEERING *2012-2014*
- Advisor: Niklas Elmqvist

Seoul National University *Seoul, South Korea*
M.S. IN BIOMEDICAL ENGINEERING *2000-2002*
- Advisor: Hee Chan Kim

Seoul National University *Seoul, South Korea*
B.S. IN ELECTRICAL ENGINEERING *1996-2000*

Professional Experience

Stanford University *Stanford, CA*
RESEARCH SCIENTIST *Jan 2024 - current*
- Department of Neurology, School of Medicine

University of Texas at Arlington *Arlington, TX*
ASSISTANT PROFESSOR *Sep 2018 - Dec 2023*
- Department of Computer Science and Engineering

TechnoSK *Seoul, South Korea*
ENGINEER *Apr 2010 - Jun 2012*
- Automated the design process for top-down modeling approach
- Resulted in the reduced lead time and man hours for the thermal design for power plant

NanoBrick *Suwon, South Korea*
CO-FOUNDER, RESEARCHER *Nov 2007 - Mar 2010*
- Lead new product development using the new color changing nano-material
- Awarded two natioanl research grant of **$1.1M**

Electronics and Telecommunications Research Institute (ETRI) *Daejeon, South Korea*
RESEARCHER *Mar 2003 - Nov 2007*
- Invented touch based context aware service using human body communication
- Licensed multiple patents to Samsung Electronics with **$2M**

Teaching Experience

UNIVERSITY OF TEXAS AT ARLINGTON

2018 - 2023	Introduction to Data Mining (**CSE 5343 4343**)	23 graduate and 16 undergraduate students
Spring 2019	Introduction to Data Mining (**CSE 5343 4343**)	24 graduate and 13 undergraduate students
Fall 2018	Introduction to Data Mining (**CSE 5343 4343**)	31 graduate and 5 undergraduate students

Spring 2018   Introduction to Data Visualization (**INST462**)   15 undergraduate students

Publications

Journal Papers (Peer reviewed)

J10 **Deokgun Park**, Mohamed Suhail, Minsheng Zheng, Cody Dunne, Eric Ragan, and Niklas Elmqvist. Storyfacets: A design study on storytelling with visualizations for collaborative data analysis. *Information Visualization*, 21(1):3–16, 2022

J9 Steven L. Elmlinger, **Park, Deokgun**, Jennifer A. Schwade, and Michael H. Goldstein. Comparing word diversity versus amount of speech in parents' responses to infants' prelinguistic vocalizations. *IEEE Transactions on Cognitive and Developmental Systems*, 2021

J8 Amira Chalbi, Jacob Ritchie, **Park, Deokgun**, Jungu Choi, Nicolas Roussel, Niklas Elmqvist, and Fanny Chevalier. Common fate for animated transitions in visualization. *IEEE transactions on visualization and computer graphics (**TVCG**)*, 2019

J7 Jinho Choi, Sanghun Jung, **Park, Deokgun**, Jaegul Choo, and Niklas Elmqvist. Visualizing for the non-visual: Enabling the visually impaired to use visualization. *Computer Graphics Forum*, 38(3):249–260, 2019

J6 **Park, Deokgun**, Steven Drucker, Roland Fernandez, and Niklas Elmqvist. Atom: : A grammar for unit visualizations. *IEEE transactions on visualization and computer graphics (**TVCG**)*, PP(99):1–1, 2017

J5 **Park, Deokgun**, Seungyeon Kim, Jurim Lee, Jaegul Choo, Nicholas Diakopoulos, and Niklas Elmqvist. Conceptvector: Text visual analytics via interactive lexicon building using word. *IEEE transactions on visualization and computer graphics (**TVCG**)*, PP(99):1–1, 2017

J4 Minjeong Kim, Kyeongpil Kang, **Park, Deokgun**, Jaegul Choo, and Niklas Elmqvist. Topiclens: Efficient multi-level visual topic exploration of large-scale document collections. *IEEE transactions on visualization and computer graphics (**TVCG**)*, (Proc. VAST 2016), 23(1):151–160, 2017

J3 Jungu Choi, **Park, Deok Gun**, Yuet Ling Wong, Eli Fisher, and Niklas Elmqvist. Visdock: A toolkit for cross-cutting interactions in visualization. *IEEE transactions on visualization and computer graphics (**TVCG**)*, 21(9):1087–1100, 2015

J2 **Park, Deokgun** and Hee Chan Kim. Comparative study of telecommunication methods for emergency telemedicine. *Journal of telemedicine and telecare*, 9(5):300–303, 2003

J1 Yoon Seok Yang, **Park, Deokgun**, Hee Chan Kim, Min-Ho Choi, and Jong-Yil Chai. Automatic identification of human helminth eggs on microscopic fecal specimens using digital image processing and an artificial neural network. *IEEE Transactions on Biomedical Engineering*, 48(6):718–730, 2001

Conference Papers (Peer Reviewed)

C10   **Park, Deokgun**, Md Ashaduzzaman Rubel Mondol, Aishwarya Pothula, and Mazharul Islam. A definition and a test for human-level artificial intelligence. In *2023 IEEE Symposium Series on Computational Intelligence (SSCI)*, pages 115–120. IEEE, 2023

C9   **Deokgun Park** and Md Ashaduzzaman Rubel Mondol. Virtual skinner box for the test of operant conditioning. In *2022 International Conference on Information and Communication Technology Convergence (ICTC)*, 2022

C8   **Park, Deokgun** , Simranjit Sachar, Nicholas Diakopoulos, and Niklas Elmqvist. Supporting comment moderators in identifying high quality online news comments. In *Proceedings of the 2016 CHI Conference on Human Factors in Computing Systems (**CHI**)*, pages 1114–1125. ACM, 2016, **Best Paper Honorable Mention Award**

C7   **Park, Deokgun** , Jungu Choi, and Niklas Elmqvist. Parallelspaces: Simultaneous exploration of feature and data for hypothesis generation. In *System Sciences (HICSS), 2016 49th Hawaii International Conference on*, pages 1437–1445. IEEE, 2016

C6   Zhenpeng Zhao, Sriram Karthik Badam, Senthil Chandrasegaran, **Park, Deok Gun** , Niklas LE Elmqvist, Lorraine Kisselburgh, and Karthik Ramani. skwiki: a multimedia sketching system for collaborative creativity. In *Proceedings of the 32nd annual ACM conference on Human factors in computing systems (**CHI**)*, pages 1235–1244. ACM, 2014

C5   **Park, Deokgun** , Jin Kyung Kim, Jin Bong Sung, Jung Hwan Hwang, Chang Hee Hyung, and Sung Weon Kang. Tap: touch-and-play. In *Proceedings of the SIGCHI conference on Human Factors in computing systems (**CHI**)*, pages 677–680. ACM, 2006

C4   **Park, Deokgun** , Jin Kyung Kim, Sung Jin Bong, Jung Hwan Hwang, Chang Hee Hyung, and Sung Weon Kang. Context aware service using intra-body communication. In *Pervasive Computing and Communications, 2006. PerCom 2006. Fourth Annual IEEE International Conference on*, pages 8–pp. IEEE, 2006

C3   **Park, Deokgun** , Seung Chul Shin, Sung Won Kang, and Youn Tae Kim. Development of flexible self adhesive patch for professional heat stress monitoring service. In *Engineering in Medicine and Biology Society, 2005. IEEE-EMBS 2005. 27th Annual International Conference of the*, pages 3789–3792. IEEE, 2006

C2   **Park, Deokgun** and Sung Weon Kang. Development of reusable and expandable communication for wearable medical sensor network. In *Engineering in Medicine and Biology Society, 2004. IEMBS'04. 26th Annual International Conference of the IEEE*, volume 2, pages 5380–5383. IEEE, 2004

C1   Seung-Chul Shin, CY Ryu, JH Kang, SH Nam, YS Song, TG Lim, JW Lee, **Park, Deokgun** , SH Kim, and YT Kim. Realization of an e-health system to perceive emergency situations. In *Engineering in Medicine and Biology Society, 2004. IEMBS'04. 26th Annual International Conference of the IEEE*, volume 2, pages 3309–3312. IEEE, 2004

Workshop Papers

W3   Md Ashaduzzaman Rubel Mondol, Aishwarya Pothula, and **Park, Deokgun**. Modeling social interaction for baby in simulated environment for developmental robotics. In *BabyMind: How Babies Learn and How Machines can Imitate at Neurips 2020*

W2   SM Islam, Md Ashaduzzaman Rubel Mondol, Aishwarya Pothula, and **Park, Deokgun**. An open-world simulated environment for developmental robotics. In *Learning in Artificial Open Worlds at ICML 2020*

W1   **Park, Deokgun** , Niklas Elmqvist, and Lorraine Kisselburgh. Vistwit: Talking together about news visualization with twitter. In *Mobile and BreakingNews: New Challenges for News Information Visualizations at IEEE VIS 2013*

Posters and Abstracts

A7   A. Pothula, M. A. Rubel Mondol, S. Narasimhan, M. Islam, and **Park, Deokgun**. Sedro: A simulated environment for developmental robotics. In *2020 Joint IEEE 10th International Conference on Development and Learning and Epigenetic Robotics (ICDL-EpiRob)*, pages 1–2, 2020

A6   Jung Hwan Hwang, Jin Bong Sung, Chang Hee Hyoung, Jin Kyung Kim, **Park, Deokgun**, and Sung Weon Kang. Analysis of signal interference in human body communication using human body as transmission medium. In *Antennas and Propagation Society International Symposium 2006, IEEE*, pages 495–498. IEEE, 2006

A5   Jung Hwan Hwang, Chang Hee Hyoung, Jin Bong Sung, Jin Kyung Kim, **Park, Deokgun**, and Sung Weon Kang. Em simulation and analysis on the ground electrode of human body communication. In *Microwave Conference, 2006. 36th European*, pages 1122–1123. IEEE, 2006

A4   Chang Hee Hyoung, Jin Bong Sung, Jung Hwan Hwang, Jin Kyung Kim, **Park, Deokgun**, and Sung Weon Kang. A novel system for intrabody communication: touch-and-play. In *Circuits and Systems, 2006. ISCAS 2006. Proceedings. 2006 IEEE International Symposium on*, pages 4–pp. IEEE, 2006

A3   Jin Bong Sung, Jung Hwan Hwang, Chang Hee Hyoung, Jin Kyung Kim, **Park, Deokgun**, and Sung Weon Kang. Effects of ground electrode on signal transmission of human body communication using human body as transmission medium. In *Antennas and Propagation Society International Symposium 2006, IEEE*, pages 491–494. IEEE, 2006

A2   Youn Tae Kim, **Park, Deokgun**, Jaemin Kang, and Kwang Seok Seo. Development of patch type sensor module for real-time monitoring of heart rate and agility index. In *Sensors, 2008 IEEE*, pages 1151–1154. IEEE, 2008

A1   **Park, Deokgun**, Yoon Seok Yang, Hee Chan Kim, Min-Ho Choi, and Jong-Yil Chai. Detecting parasitic eggs automatically using artifitial neural net. In *LabAutomation*. Assoication for Laboratory Automation (ALA), 2002, **(Best Poster Award)**

Preprints

X5   **Deokgun Park**, Md Ashaduzzaman Rubel Mondol, SM Mazharul Islam, and Aishwarya Pothula. Hippocampus-inspired cognitive architecture (hica) for operant conditioning, 2022

X4   Deokgun Park. Toward human-level artificial intelligence. *arXiv preprint arXiv:2108.03793*, 2021

X3   Md Ashaduzzaman Rubel Mondol, Aishwarya Pothula, and **Park, Deokgun**. A definition and a test for human-level artificial intelligence. *arXiv preprint arXiv:2011.09410*, 2020

X2   Aishwarya Pothula, Md Ashaduzzaman Rubel Mondol, Sanath Narasimhan, Sm Mazharul Islam, and **Deokgun Park**. Sedro: A simulated environment for developmental robotics. *arXiv preprint arXiv:2009.01810*, 2020

X1   **Deokgun Park**, Sung-Hee Kim, and Niklas Elmqvist. Gatherplots: Generalized scatterplots for nominal data. *arXiv preprint arXiv:1708.08033*, 2017

Patents

P13 Cody G Dunne, T Alan Keahey, Mauro Martino, and Deok Gun Park. Interactive visualization, October 1 2019. US Patent 10,430,436

P12 Cody G Dunne, T Alan Keahey, Mauro Martino, and Deok Gun Park. Interactive visualization, June 25 2019. US Patent 10,331,636

P11 Cody G Dunne, T Alan Keahey, Mauro Martino, and Deok Gun Park. Interactive visualization, July 30 2019. US Patent 10,366,061

P10 Cody G Dunne, T Alan Keahey, Mauro Martino, and Deok Gun Park. Interactive visualization, September 24 2019. US Patent 10,423,593

P9 Duck Gun Park, Sung Weon Kang, and Chang Auck Choi. Communication apparatus and method using human body as medium, January 30 2007. US Patent 7,171,177

P8 Duck-Gun Park, Sung-Weon Kang, Jin-kyung Kim, Chang-hee Hyoung, Jin-Bong Sung, and Jung-Hwan Hwang. Human body communication device, human body communication system and method using the same, November 22 2005. US Patent App. 11/284,749

P7 Ki-Hyuk Park, In-Gi Lim, Sung-Weon Kang, Hyung-Il Park, Chang-hee Hyoung, Jung-Hwan Hwang, Jin-kyung Kim, Duck-Gun Park, Tae-Wook Kang, Sung-Eun Kim, et al. Human body communication system and communication method thereof, June 18 2013. US Patent 8,467,431

P6 Hyung Il Park, In Gi Lim, Tae Wook Kang, Sung Weon Kang, Kyung Soo Kim, Jung Bum Kim, Chang Hee Hyoung, Jung Hwan Hwang, Jin Kyung Kim, Sung Eun Kim, et al. Apparatus for frequency modulating and demodulating of frequency selective baseband with gain of frequency diversity, and apparatus for transmitting and receiving using for this, April 29 2008. US Patent App. 12/667,385

P5 Duck-Gun Park, Young Tae Kim, Sung Weon Kang, and Seung Chul Shin. Portable data transmitting device, and system and method for managing heat stress using the same, February 28 2006. US Patent App. 12/096,371

P4 Duck-Gun Park and Youn-Tae Kim. System for managing physical training and method thereof, January 29 2013. US Patent 8,360,785

P3 Duck-Gun Park, Sung-Weon Kang, Chang-hee Hyoung, Jin-Bong Sung, Jung-Hwan Hwang, and Jin-kyung Kim. Method and apparatus for providing touch and play (tap)—based service and system using the method and apparatus, April 24 2012. US Patent 8,165,522

P2 Hyung Il Park, In Gi Lim, Tae Wook Kang, Sung Weon Kang, Kyung Soo Kim, Jung Bum Kim, Chang Hee Hyoung, Jung Hwan Hwang, Jin Kyung Kim, Sung Eun Kim, et al. Frequency modulating apparatus and transmitting apparatus including the same, and frequency demodulating apparatus and receiving apparatus including the same, June 24 2014. US Patent 8,761,231

P1 Duck-Gun Park, Sung-Weon Kang, Chang-hee Hyoung, Jin-Bong Sung, Jung-Hwan Hwang, Sung-Eun Kim, Jin-kyung Kim, In-Gi Lim, Hyung-ll Park, Jung-Bum Kim, et al. Apparatus and method for providing media advertisement service using human body communication, December 5 2007. US Patent App. 12/518,091

Grants and Contracts

G3 **Deokgun Park (PI)**, "Hippocampus-Inspired Cognitive Architecture", Electronics and Telecommunications Research Institute, South Korea, Research contract, $60,000 (personal share 100%), Jan 2023-Dec. 2023

G2 Yan Xiao (PI), **Deokgun Park (CoPI)** , Mary E. (Beth) Mancini, Shirin Nilizadeh, "Text Analytics for Debriefing Reflection Essays", Academic Partnership Faculty Research Grant, $11,550 (personal share 50%), Nov. 2019-Sep. 2020

G1 **Deokgun Park (PI)**, Rising STARs program, University of Texas, $300,000, Sep. 2018-Aug. 2021

Invited Talks

T15 *Cognitive Architecture for Operant Conditioning.* Electronics and Telecommunications Research Institute (host: Complex Intelligence Research Team) (June 14, 2022)

T14 *Cognitive Architecture for Operant Conditioning.* Seoul National University (host: Biointelligence Lab (July 7, 2022)

T13 *Programming Human-Level AI.* DoD Joint Artificial Intelligence Center (JAIC) (July 22, 2021)

T12 *Toward Human-Level AI.* Army Research Lab (May 3, 2021)

T11 *Thinking, Autism and the Artificial General Intelligence.* Seoul National University (host: Department of Computer Science and Engineering), Seoul, South Korea (Dec 26, 2018)

T10 *Thinking, Autism and the Artificial General Intelligence.* Daegu Gyungbook Institute of Science and Technology (DGIST) (host: Biomedical Engineering Department), Daegu, South Korea (Dec 26, 2018)

T9 *Open-ended tasks for text mining.* Tutorial at Korean software conference (host: Korean Information Science Society), Pyungchang, South Korea (Dec 19, 2018)

T8 *Thinking, Autism and the Artificial General Intelligence.* Seoul National University (host: Department of Biomedical Engineering), Seoul, South Korea (Dec 18, 2018)

T7 *Visual Analytics for Comments Analysis.* Naver lab, Seoul, South Korea (Dec 17, 2018)

T6 *Visual Analytics for Comments Analysis.* University of Otago, Dunedin NZ (host: Department of Information Science), Dunedin, NZ (Aug 6, 2018)

T5 *Visual Analytics for Comments Analysis.* New York University (host: Center for Data Science), New York, NY (Apr 18, 2018)

T4 *Visual Analytics for Comments Analysis.* New Jersey Institute of Technology (host: Department of Informatics), New Jersey, NJ (Apr 5, 2018)

T3 *Computational Methods for Open-Ended Tasks.* University of Memphis (host: Department of Computer Science), Memphis, TN (Mar 27, 2018)

T2 *ConceptVector: Text Visual Analytics via Interactive Lexicon Building using Word Embedding.* Food and Drug Administration (FDA)(host: Vaishali Popat), Silver Spring, MD (July 19, 2017)

T1 *Thinking, Autism and the Artificial General Intelligence.* University of Maryland (host: Human-Computer Interaction Lab (HCIL) Brown Bag Lunch (BBL) Seminar Series), College Park, Maryland (Mar 08, 2018)

Honors and Awards

2016	Honorable Mention for Best Paper. ACM Conference on Human Factors in Computing Systems (CHI), awarded for "Supporting Comment Moderators in Identifying High Quality Online News Comments"
2015	Fellowship for IEEE VIS Doctoral Colloquium
2015	1st Place award, Codeathon at American Public Health Association ($2,500 team prize)
2015	Best use of Harman Technology at AT&T Mobile App Hackathon, Boston
2014	3 awards from Codeathonat American Public Health Association ($12,000 team prize)
2013	2nd Place award at Schurz Innovation Challenge at Purdue University ($3,500 prize)
2012	Finalist at Lockheed Martin Innovate the Future Challenge (15 from 500 ideas submitted)
2012	Postech Fellowship for 2 years tuition and stipend
2007	Best Tech Transfer Award and Best Patent Award received as a team
2002	Best Poster Award at LabAutomation 2002 (Palm Springs, CA. $1,000 prize)
2001	2nd award in a Student Paper Competition in Korean Society of Biomedical Engineering conference

Academic Service

Workshop Organizer

2017	IEEE VIS 2017 Visual Analytics for Deep Learning (VADL) Workshop

Student Organizer

2016-2017	HCIL Brown Bag Lunch Seminar Series

Program committee member

2019	IEEE VAST
2019	IEEE InfoVis
2019-2020	IEEE VIS Short Papers

Conference Review

2022	ACM Symposium on User Interface Software and Technology (**UIST**)
2017-2020	ACM CHI Conference on Human Factors in Computing Systems (**CHI**)
2019	ACM International Conference on Intelligent User Interfaces(**IUI**)
2019	IEEE International Conference on Development and Learning and on Epigenetic Robotics(**ICDL-EpiRob**)

JOURNAL REVIEW

2018	IEEE Computer Graphics and Applications(**CG&A**)
2018	International Journal of Human-Computer Studies (**IJHCS**)
2019	Transactions on Knowledge and Data Engineering(**TKDE**)
2019	Transactions on Emerging Topics in Computing (**TETC**)
2020	IEEE Transactions on Visualization and Computer Graphics (**TVCG**)
2020	IEEE Robotics and Automation Letters (**RA-L**)

WORKSHOP REVIEW

| 2019 | International Workshop on Misinformation, Computational Fact-Checking and Credible Web (**MisINFO**) |

Students Advised

Ph.D Thesis Major Advisor (Academic Committee Chair)

- Md Ashaduzzaman Rubel Mondol (Ph.D. student), Department of Computer Science and Engineering, Aug. 2019-present (funded graduate teaching assistant)
- Aishwarya Pothula (Ph.D. student), Department of Computer Science and Engineering, Jan. 2019-present (funded graduate teaching assistant)
- Sm Mazharul Islam (Ph.D. student), Department of Computer Science and Engineering, Sep. 2020-present (funded graduate teaching assistant)

Graduated Masters Students (Academic Committee Chair or Member)

- Md Shadekur Rahman (Masters 2020), *Development of Text Analytics for Debriefing Reflection Essays* Department of Computer Science and Engineering, University of Texas at Arlington, May. 2020
- Sanath Narasimhan (Masters 2020), *Evaluating the Accuracy of Gaze Detection for Moving Character* Department of Computer Science and Engineering, University of Texas at Arlington, May. 2020
- Paul Lewis Lobo (Masters 2020), *Intrinsic Curiosity in Reinforcement Learning by Improving Next Step Prediction* Department of Computer Science and Engineering, University of Texas at Arlington, May. 2020
- Sanjay Thapa (Masters 2019), *Use of Word Embedding To Generate Similar Words and Misspellings for Training Purpose in Chatbot Development* Department of Computer Science and Engineering, University of Texas at Arlington, Dec. 2019
- Sarbajit Roy (Masters 2019), *FrameAnnotator - A frame-semantic annotation tool*, Department of Computer Science and Engineering, University of Texas at Arlington, Apr. 2019

Open Source Software

SEDRo

HTTPS://ANUR0N.GITHUB.IO/SEDRO-WEBSITE/
- A simulated environment for developmental robotics

Gatherplot

GATHERPLOT.FIREBASEAPP.COM
- An extension of Scatterplot for Multidimensional data

Conceptvector

CONCEPTVECTOR.ORG
- A lexicon-based interactive text analytis

Unit Visualization Grammar

INTUINNO.GITHUB.IO/UNIT
- A declarative grammar for unit visualizations

CommentIQ

- Comments Moderation tool for Online news sites

MovieVis

- A Visual Analytics software for market data