

# Stanford

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## David Sirkin

Lecturer

Mechanical Engineering

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### Bio

#### BIO

David Sirkin is a Research Associate at Stanford University's Center for Design Research, where he focuses on design methodology, as well as the design of physical interactions between humans and robots, and autonomous vehicles and their interfaces. He is also a Lecturer in Electrical Engineering, where he teaches interactive device design. David frequently collaborates with, and consults for, local Silicon Valley and global technology companies including Siemens, SAP and Microsoft Research. He grew up in Florida, near the Everglades, and in Maine, near the lobsters.

#### ACADEMIC APPOINTMENTS

- Lecturer, Mechanical Engineering

#### PATENTS

- Gina D Venolia, George G Robertson, John C Tang, David M Sirkin, Bongshin Lee. "United States Patent 8520052, 9270936 Functionality for indicating direction of attention", Microsoft Research, Aug 27, 2013

#### LINKS

- Google Scholar Page: <https://scholar.google.com/citations?user=KHmxaz4AAAAJ>
- Interaction Design Lab: <https://ixd.stanford.edu>

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### Teaching

#### COURSES

##### 2023-24

- Design Research Theory and Methodology Seminar: ME 397 (Spr)
- How to Redesign Everyday Things (for Beginners): ME 106 (Aut)
- Making and Breaking Things: ME 108 (Spr)

##### 2022-23

- Design Research Theory and Methodology Seminar: ME 397 (Win, Spr)

##### 2021-22

- Design Research Theory and Methodology Seminar: ME 397 (Aut, Win, Spr)

##### 2020-21

- Design Research Theory and Methodology Seminar: ME 397 (Aut, Win, Spr)

## STANFORD ADVISEES

### Doctoral Dissertation Co-Advisor (NonAC)

Okkeun Lee

## Publications

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### PUBLICATIONS

- **Evaluation of smartphone interactions on drivers' brain function and vehicle control in an immersive simulated environment.** *Scientific reports*  
Baker, J. M., Bruno, J. L., Piccirilli, A., Gundran, A., Harbott, L. K., Sirkin, D. M., Marzelli, M., Hosseini, S. M., Reiss, A. L.  
2021; 11 (1): 1998
- **Aladdin's magic carpet: Navigation by in-air static hand gesture in autonomous vehicles** *INTERNATIONAL JOURNAL OF HUMAN-COMPUTER INTERACTION*  
Qian, X., Ju, W., Sirkin, D.  
2020
- **On-Road and Online Studies to Investigate Beliefs and Behaviors of Netherlands, US and Mexico Pedestrians Encountering Hidden-Driver Vehicles**  
Li, J., Currano, R., Sirkin, D., Goedicke, D., Tennent, H., Levine, A., Evers, V., Ju, W., ACM  
ASSOC COMPUTING MACHINERY.2020: 141–49
- **Half Day Workshop on Mental Models of Robots**  
Rueben, M., Nikolaidis, S., de Graaf, M., Phillips, E., Robert, L., Sirkin, D., Kwon, M., Thellman, S., Assoc Comp Machinery  
ASSOC COMPUTING MACHINERY.2020: 658-659
- **Defense Against the Dark Cars: How People Grief Autonomous Vehicles**  
Moore, D., Currano, R., Shanks, M., Sirkin, D., Assoc Comp Machinery  
ASSOC COMPUTING MACHINERY.2020: 642
- **The Forgotten in HRI: Incidental Encounters with Robots in Public Spaces**  
Rosenthal-von der Putten, A., Sirkin, D., Abrams, A., Platte, L., Assoc Comp Machinery  
ASSOC COMPUTING MACHINERY.2020: 656-657
- **Make This! Introduction to Electronics Prototyping Using Arduino**  
Martelaro, N., Zamfirescu-Pereria, J. D., Goedicke, D., Sirkin, D., Ju, W., Assoc Comp Machinery  
ASSOC COMPUTING MACHINERY.2020
- **Autonomous Vehicle-Pedestrian Interaction Across Cultures: Towards Designing Better External Human Machine Interfaces (eHMIs)**  
Ranasinghe, C., Hollaender, K., Currano, R., Sirkin, D., Moore, D., Schneegass, S., Ju, W., Assoc Comp Machinery  
ASSOC COMPUTING MACHINERY.2020
- **Defense Against the Dark Cars: Design Principles for Griefing of Autonomous Vehicles**  
Moore, D., Currano, R., Shanks, M., Sirkin, D., ACM  
ASSOC COMPUTING MACHINERY.2020: 201–9
- **The Car That Cried Wolf: Driver Responses to Missing, Perfectly Performing, and Oversensitive Collision Avoidance Systems**  
Fu, E., Sibi, S., Miller, D., Johns, M., Mok, B., Fischer, M., Sirkin, D., IEEE  
IEEE.2019: 1830–36
- **The Case for Implicit External Human-Machine Interfaces for Autonomous Vehicles**  
Moore, D., Currano, R., Strack, G., Sirkin, D., Assoc Comp Machinery  
ASSOC COMPUTING MACHINERY.2019: 295–307
- **ActiveNavigator: Toward Real-Time Knowledge Capture and Feedback in Design Workspaces**  
Moore, D., Ge, X., Sirkin, D., Stenholm, D., Ju, W.  
TEMPUS PUBLICATIONS.2018: 723–33
- **Toward measurement of situation awareness in autonomous vehicles** *Proceedings of the 35th ACM CHI Conference on Human Factors in Computing Systems*

- Sirkin, D., Martelaro, N., Johns, M., Ju, W.  
2017
- **Designing the behavior of interactive objects** *Proceedings of the 11th ACM International Conference on Tangible, Embedded, and Embodied Interaction*  
Spadafora, M., Chahuneau, V., Martelaro, N., Sirkin, D., Ju, W.  
2016
  - **Monitoring driver cognitive load using near infrared spectroscopy in partially autonomous cars** *Proceedings of the 2016 IEEE Intelligent Vehicles Symposium*  
Sibi, S., Ayaz, H., Kuhns, D., Sirkin, D., Ju, W.  
2016
  - **Exploring shared control in automated driving** *Proceedings of the 11th ACM/IEEE International Conference on Human Robot Interaction*  
Johns, M., Mok, B., Sirkin, D., Gowda, N., Miller, D., Talamonti, W., Ju, W.  
2016
  - **Ghost driver: A field study investigating the interaction between pedestrians and driverless vehicles** *Proceedings of the 24th IEEE International Symposium on Robot and Human Interactive Communication*  
Dirk, R., Li, J., Sirkin, D., Mok, B., Ju, W.  
2016
  - **A Faust based driving simulator sound synthesis engine** *Proceedings of the 2016 IEEE International Conference on Systems, Man and Cybernetics*  
Michon, R., Johns, M., O'Modhrain, S., Gang, N., Gowda, N., Sirkin, D., Chafe, C., Wright, M., Ju, W.  
2016
  - **Behavioral measurement of trust in automation: The trust fall** *Proceedings of the 60th International Meeting of the Human Factors and Ergonomics Society*  
Miller, D., Johns, M., Mok, B., Gowda, N., Sirkin, D., Lee, K., Ju, W.  
2016
  - **Exploring transitional automation with new and old drivers** *Proceedings of the 2016 SAE International World Congress*  
Miller, D., Johns, M., Gowda, N., Sirkin, D., Sibi, S., Mok, B., Aich, S., Ju, W.  
2016
  - **Robots need humans in the loop to improve the hopefulness of disaster survivors** *Proceedings of the 24th IEEE International Symposium on Robot and Human Interactive Communication*  
Dole, L., Sirkin, D., Murphy, R., Nass, C.  
2015
  - **A place for every tool and every tool in Its place: Performing collaborative tasks with interactive robotic drawers** *Proceedings of the 23rd IEEE International Symposium on Robot and Human Interactive Communication*  
Mok, B., Yang, S., Sirkin, D., Ju, W.  
2015
  - **Distraction becomes engagement in automated driving** *Proceedings of the 2015 Annual Meeting of the Human Factors and Ergonomics Society*  
Miller, D., Sun, A., Johns, M., Ive, P., Sirkin, D., Aich, S., Ju, W.  
2015
  - **Emergency, automation off: Unstructured transition timing for distracted drivers of automated vehicles** *Proceedings of the 18th IEEE International Conference on Intelligent Transportation Systems*  
Mok, B., Johns, M., Lee, K., Miller, D., Sirkin, D., Ju, W.  
2015
  - **Experiences developing socially acceptable interactions for a robotic trash barrel** *Proceedings of the 23rd IEEE International Symposium on Robot and Human Interactive Communication*  
Yang, S., Mok, B., Sirkin, D., Ive, P., Maheshwari, R., Fischer, K., Ju, W.  
2015
  - **Understanding driver-automated vehicle interactions through Wizard-of-Oz design improvisation** *Proceedings of the 8th International Symposium on Human Factors in Driving Assessment*  
Mok, B., Sirkin, D., Sibi, S., Miller, D., Ju, W.  
2015

- **Mechanical ottoman: How robotic furniture offers and withdraws support** *Proceedings of the 10th Annual ACM/IEEE International Conference on Human-Robot Interaction*  
Sirkin, D., Mok, B., Yang, S., Wendy  
2015
- **Displayed uncertainty improves driving experience and behavior: The case of range anxiety in an electric car** *Proceedings of the 33rd Annual ACM Conference on Human Factors in Computing Systems*  
Jung, M., Sirkin, D., Gür, T., Steinert, M.  
2015
- **Using embodied design improvisation as a design research tool** *Proceedings of the International Conference on Human Behavior in Design*  
Sirkin, D., Ju, W.  
2014
- **Press play: A course in interactive device design** *Proceedings of the 2014 Annual Conference of the American Society of Engineering Education*  
Sirkin, D., Ju, W.  
2014
- **Empathy: Interactions with emotive robotic drawers** *Proceedings of the 9th Annual ACM/IEEE International Conference on Human Robot Interaction*  
Mok, B., Yang, S., Sirkin, D., Ju, W.  
2014
- **Where to Look and Who to Be Designing Attention and Identity for Search-and-Rescue Robots** *8th Annual ACM/IEEE International Conference on Human-Robot Interaction (HRI)*  
Dole, L. D., Sirkin, D. M., Currano, R. M., Murphy, R. R., Nass, C. I.  
IEEE.2013: 119–120
- **Consistency in physical and on-screen action improves perceptions of telepresence robots** *Proceedings of the 7th Annual ACM/IEEE International Conference on Human-Robot Interaction*  
Sirkin, D., Ju, W.  
2012
- **Motion and attention in a kinetic videoconferencing proxy** *Proceedings of the 13th IFIP TC13 Conference on Human-Computer Interaction*  
Sirkin, D., Venolia, G., Tang, J., Robertson, G., Kim, T., Inkpen, K., Sedlins, M., Lee, B., Sinclair, M.  
2011
- **Animate Objects: How Physical Motion Encourages Public Interaction** *5th International Conference on Persuasive Technology*  
Ju, W., Sirkin, D.  
SPRINGER-VERLAG BERLIN.2010: 40–51
- **Lowering barriers to distributed design research collaboration** *Proceedings of the 17th International Conference on Engineering Design*  
Sirkin, D., Sonalkar, N., Jung, M., Leifer, L.  
2009