Kevin Rio

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Research Experience

Research Scientist	Facebook Reality Labs, Applied Perception Science	2018-pres.
User Researcher II	Microsoft, Windows Mixed Reality (HoloLens & VR)	2017-2018
UX Researcher	Microsoft, Windows 10 (OS & Applications)	2015-2017
Graduate Student	Brown University, Virtual Environment Navigation Lab	2009-2015
Undergraduate RA	Rensselaer Polytechnic Institute, Changizi Lab	2007-2009
Undergraduate RA	Rensselaer Polytechnic Institute, Center for Terahertz Research	2007

Research Interests

augmented reality; cognitive science; dynamical systems; perception and action; psychophysics; virtual reality

Education

Ph.D.	Cognitive Science, Brown University Advisor: William H. Warren Thesis: "Mapping the visual coupling between neighbors in real and virtual crowds"	2015
M.S.	Cognitive Science, Brown University Advisor: William H. Warren Thesis: "Pedestrian following: Behavioral dynamics and visual information"	2012
B.S.	Psychology, Rensselaer Polytechnic Institute Advisor: Mark A. Changizi Thesis: "Color vision in clinical medicine"	2009
B.S.	Physics, Rensselaer Polytechnic Institute	2009

Publications

Rio KW, Dachner GC, Warren WH (2018). Local interactions underlying collective motion in human crowds. *Proceedings of the Royal Society B: Biological Sciences 285:* 20180611.

Kiefer AW, **Rio KW**, Bonneaud S, Walton A, & Warren WH (2017). Quantifying and modeling coordination and coherence in pedestrian groups. *Frontiers in Psychology 8:949*, 1-13.

Rio KW & Warren WH (2016). Interpersonal coordination in biological systems: The emergence of collective locomotion. In Passos P, Chow JY, & Davids K (Eds.), *Interpersonal Coordination in Social and Biological Systems*, 3-16. Abingdon: Routledge.

Rio KW, Rhea CK & Warren WH (2014). Follow the leader: Visual control of speed in pedestrian following. *Journal of Vision*, 14(2): 4, 1-16.

Rio KW & Warren WH (2014). The visual coupling between neighbors in real and virtual crowds. *Transportation Research Procedia 2,* 132-140.

Changizi MA, Brucksch M, Kotecha R, McDonald K, & **Rio KW** (2014). Ecological warnings. *Safety Science* 61, 36-42.

Rio KW & Warren WH (2012). A data-driven model of pedestrian following and emergent crowd behavior. In Weidmann, Kirsch, & Shreckenberg (Eds.), *Pedestrian and Evacuation Dynamics*, 561-574. New York: Springer.

Bonneaud S, **Rio KW**, Chevaillier P, & Warren WH (2012). Accounting for patterns of collective behavior in crowd locomotor dynamics for realistic simulations. *Lecture Notes in Computer Science 7145: Transactions on Edutainment VII*, 1-11.

Changizi MA & **Rio KW** (2010). Harnessing color vision for visual oximetry in central cyanosis. *Medical Hypothoses* 74, 87-91.

Rio KW & Warren WH (accepted). Interpersonal coordination in biological systems: The emergence of collective behavior. In Passos P, Chow JY, & Davids K (Eds.), *Interpersonal Coordination in Biological Systems*.

Kiefer AW, **Rio KW**, Bonneaud S, & Warren WH (in preparation). Quantifying and modeling coordination in pedestrian groups.

Presentations

Warren WH & **Rio KW** (2015). The visual coupling between neighbors in a virtual crowd. Talk, International Conference on Perception and Action, Minneapolis MN.

Warren WH & **Rio KW** (2015). The visual coupling between neighbors in a virtual crowd. Talk, Vision Sciences Society 15th Annual Meeting, St. Pete Beach FL.

Rio KW & Warren WH (2014). Visual coupling to multiple neighbors in a crowd influences walking speed and direction. Poster, Vision Sciences Society 14th Annual Meeting, St. Pete Beach FL.

Kiefer AW, Bonneaud S, **Rio KW**, & Warren WH (2013). Quantifying the coherence of pedestrian groups. Poster, Cognitive Science Society 35th Annual Meeting, Berlin DE.

Rio KW & Warren WH (2013). Visually-guided collective behavior in human swarms. Poster, Vision Sciences Society 13th Annual Meeting, Naples FL.

Rio KW (2012). Coordinated locomotion in groups of humans and mobile robots. Poster, Brown University NASA Space Horizons Workshop, Providence RI.

Rio KW & Warren WH (2012). A data-driven model of pedestrian following and emergent crowd behavior. Talk, 6th International Conference on Pedestrian and Evacuation Dynamics, Zürich CH.

Rio KW, Bonneaud S, & Warren WH (2012). Speed coordination in pedestrian groups: Linking individual locomotion with crowd behavior. Poster, Vision Sciences Society 12th Annual Meeting, Naples FL.

Rio KW, & Warren WH (2011). A speed control law for pedestrian following based on visual angle. Poster, Vision Sciences Society 11th Annual Meeting, Naples FL.

Rio KW, Bonneaud S, & Warren WH (2010). Locomotion dynamics of multiple pedestrians: Characterizing individual and group behavior. Poster, Psychonomics Society 51st Annual Meeting, St. Louis MO.

Rio KW, Rhea C, & Warren WH (2010). Follow the leader: Behavioral dynamics of following. Poster, Vision Sciences Society 10th Annual Meeting, Naples FL.

Fellowships and Grants

Link Foundation Fellowship in Advanced Training and Simulation	2013-2014
Brown University International Affairs Travel Grant	2012
EU Cog II Travel Grant	2011
NASA RI Space Grant Fellowship	2011
Honorable Mention, National Science Foundation Graduate Research Fellowship	2010, 2011
Brown University First Year Fellowship	2009-2010

Professional Development

International Summer School: "Dynamic Field Theory: Neural Dynamics Approaches to Cognitive Robotics," University of Minho, Guimarães PT	2011
Member, Vision Sciences Society	2009-pres.

Teaching Experience

Graduate TA	CLPS 0510 Perception, Illusion, and the Visual Arts, Brown University	Spring 2013
Graduate TA	CLPS 0500 Perception and Mind, Brown University	Spring 2011
Graduate TA	CLPS 0900 Quantitative Methods in Psychology, Brown University	Fall 2010
Undergraduate TA	MATH 1010 Calculus I, Rennselaer Polytechnic Institute	Fall 2008
Undergraduate TA	PHYS 1100 Physics I, Rennselaer Polytechnic Institute	Spring 2006

Skills

Virtual Reality and Related Hardware:
- 6DOF ultrasonic-inertial tracking
- Electronics & circuits
- Eye tracking
- Full-body infrared motion capture
- Head-mounted displays (HMDs)
- Galvanic vestibular stimulation (GVS)
- Optics & optoelectronics
- Wireless video transmission

Software:
- HTML/CSS
- MATLAB
- PsychoPy
- PsychToolbox
- Python
- R
- SPSS
- Unity