Vita
Kenneth Kotovsky

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Professional Employment:

Carnegie-Mellon University Psychology Department:
>	Professor Emeritus, 2020 - present
>	Professor & Dir. Undergraduate Studies in Psychology,
>		2000-2010
>	Associate Professor & Dir. Undergraduate Studies in Psychology,
>		1989-2000
>	Adjunct Professor, 1988-1989,
>	Research Associate, 1983-1988.

Community College of Allegheny County, Allegheny Campus:
>	Professor of Psychology: 1981-1989.
>	Associate Professor of Psychology and Chairperson; Behavioral	Sciences
>		Department, 1976-1981,
>	Assistant Professor of Psychology: 1973-1975,
>	Assistant Professor of Biology, 1970-1973,
>	Instructor of Biology, 1966-1970.

Biophysical Research Laboratory, Eye and Ear Hospital of Pittsburgh:
>	---U.S. Public Health Service Trainee, 1963-1964.

Stanford Research Institute Control Systems Laboratory:
>	---Systems Analyst, (Psychophysics & Sensory Physiology), Summers, '62--64.

Education:

Ph.D. Carnegie-Mellon University, Psychology, 1983.
Dissertation: Tower Of Hanoi Problem Isomorphs and Solution Processes.

M.S. Carnegie-Mellon University, Psychology, 1970.
Thesis: An Empirical Test of the Simon and Kotovsky "Concept Former" Model

of Human Letter Series Sequence Extrapolation Behavior.

University of Pittsburgh: Graduate study in Physiology, 1963-1966.

B.S. Massachusetts Institute of Technology, Psychology and Natural Science, 1961.
Thesis: The Effects of Word Rarity, Word Structure, and Information Value Per Word on
the Identifiability of Tachistoscopically Presented Words.

Awards

Best Paper Award 2012 *ASME Design Theory and Methodology Conference,*

Xerox Best Paper Award *1998 ASME Design Theory and Methodology Conference,*

Xerox Best Paper Award at the *1998 ASME Design Engineering Technical Conferences:
Design Theory and Methodology Conference, DETC98/DTM-5673*, Atlanta, GA,
September 13-16, 1998.

Best Paper Award *2008 ASME Design Theory and Methodology Conference,*

Carnegie Mellon Dietrich College Elliott Dunlap Smith Teaching Award, 2008/2009.

Carnegie Mellon University, University Advising Award, 1996

National Science Foundation Graduate Fellowship, 1964-1966.

U.S. Public Health Service Traineeship, 1963.

Karl Taylor Compton Award, M.I.T. 1961.

Ph.D. and Post-Doctoral Students Advised

Jeremy Gottleib (co-advised with Herbert A. Simon) now Senior Research Scientist,
        Smart Information Flow Technologies (SIFT))
Paul Reber (now Professor, Psychology, Northwestern University)
Matthew Wood (now Research Scientist at US Army Corps of Engineers)
Jared Moss (co-advised with Jonathan Cagan, now Associate Professor, Psychology
        Mississippi State Unuiversity)
Matthew Campbell (co-advised with Jonathan Cagan, now Professor, Mechanical
        Engineering, University of Oregon)
Jesse Olsen (co-advised with Jonathan Cagan, now Principle Technical Architect, USAA)
Ian Tseng (co-advised with Jonathan Cagan)
Katherine Fu (co-advised with Jonathan Cagan) (now Associate Professor, University of
        Wisconsin, Madison)
Ian Tseng (co-advised with Jonathan Cagan, now Engineer at Nuclear Regulatory

Commission)
Joshua Gyori (co-advised with Jonathan Cagan, now Consultant, Boston Consulting)
Leah Chong (co-advised with Jonathan Cagan) (now post-doctoral researcher, MIT)
Christopher McComb (now Associate Professor, Carnegie Mellon University, winner of
　　　　CMU Mechanical Engineering Doctoral Research Award)
Ut Na Sio (co-advised with Jonathan Cagan, now Assistant Professor, The Education
　　　　University of Hong Kong)
Ethan Brownell (co-advised with Jonathan Cagan) (expected completion date, May 2023)

Grants & Fellowships

National Science Foundation Grant to fund the 1987 Carnegie Symposium on
 Cognition, (co-PI with David Klahr).

Office of Naval Research Contract No. N00014-85-K-0696 to study transfer of
 training in problem solving, 1985-1987 (PI).

National Science Foundation Supplementary Research Grant to support research at
Carnegie-Mellon University on the role of representation in problem solving, 1981.

National Science Foundation Graduate Fellowship, 1964-1966.

U.S. Public Health Service Traineeship, 1963.

Carnegie Research Assistantship, 1961-1963.

Air Force Office of Scientific Research Research Contract, Cognitive Approaches to
Automated Engineering Design, (co-PI with Jonathan Cagan) 2004-2006

National Science Foundation Grant, DNI-0627894, (co-PI with Jonathan Cagan)
Understanding the Role of Impasses and Representation Changes in Creative Design:
 An Initial Study. $153.702, 2006-2007

National Science Foundation Grant, (co-PI with Jonathan Cagan) Open Goals in
Design Problem Solving: Environmental Input and Sources of Design Breakthroughs
 $499,999, Sept. 2008- Sept. 2010

National Science Foundation Grant, (with Jonathan Cagan) Stimulating Creative
 Insight: A Cohesive Model of Design Innovation Across Individuals, Groups and
 Computer Agents $212,000, Jan. 2008- Jan. 2011

The Cognitive and Computational Modeling of Team Problem Solving for Decision
Making Under Complex and Dynamic Conditions, AFOSR ($598,920), 7/12-6/15 (Co-
PI with Jonathan Cagan)

A Synergistic Partnership Between Human Teams and Computer Agents," AFOSR ($446,405), 11/15-10/17 (co-PI with Jon Cagan).

Overcoming Impasses in Design Problem Solving: Environmental Input and Sources of Design Breakthroughs," NSF ($499,999), 9/07-8/10 (co-PI w/ Jonathan Cagan).

The Cognitive and Computational Modeling of Team Problem Solving for Decision Making Under Complex and Dynamic Conditions, AFOSR ($598,920), 7/12-6/15 (co-PI w/ Jonathan Cagan).

A Synergistic Partnership Between Human Teams and Computer Agents," AFOSR ($446,405), 11/15-10/17 (co-PI w/ Jonathan Cagan).

Empowering the problem solving team through a computer-human partnership," AFOSR ($1,430,217), 11/1/17-10/31/22 (co-PI w/ Jonathan Cagan).

Journal and Grant Reviews

National Science Foundation, Instrumentation and Laboratory Improvement
 Program, Panel member, 1988.
National Science Foundation, Memory and Cognitive Processes Program, occasional
 grant reviewer.
Cognitive Psychology
Cognitive Science
JEP General
Journal of Memory and Language
Cognition and Instruction
American Educational Research Journal
Cognitive Science Society, Proceedings of Annual Meeting
AAAI, Annual Meeting
Journal of Mechanical Design
Research in Engineering Design

Publications

Simon, H. A., & Kotovsky, K.; Human Acquisition of Concepts for Sequential Patterns: Psychological Review, 1963, 70, 534-546.
      Reprinted in: Simon, H.A.; Models of Thought, New Haven: Yale University
      Press, 1979.

Kotovsky, K., & Bliss, J. C.; Tactile Presentation of Visual Informatiion; Institute of Electronic and Electrical Engineers, Transactions in Military Electronics, 1963, MIL-7, 108-113.

Kotovsky, K., & Simon, H. A.; Empirical Tests of a Theory of Human Acquisition of Concepts for Sequential Patterns; Cognitive Psychology, 1973, 4, 399-424.
       Reprinted in: Simon, H.A.; Models of Thought,, New Haven: Yale University Press, 1979.

Kotovsky, K., Hayes, J. R., & Simon, H. A.; Why Are Some Problems Hard? Evidence From Tower of Hanoi; Cognitive Psychology, 1985, 17, 248-294.
       Reprinted in: Simon, H.A.; Models of Thought, Volume Two], New Haven: Yale University Press, 1989.

Siegler, R., & Kotovsky, K.; Two Levels of Giftedness: Shall Ever the Twain Meet? in R. Sternberg & J. Davidson (Eds). Conceptions of Giftedness, New York, N.Y.: Cambridge University Press, 1986.
       Reprinted in: Albert, R. S. (Ed). Genius and Eminence: the Social Psychology of Creativity and Exceptional Achievement, 2nd ed.] Oxford, U.K.: Pergamon Press, 1992.

Kotovsky, K.; Consciousness Raising About Consciousness; a review of Cognitive Psychology: An Essay in Cognitive Science, by George Mandler, Contemporary Psychology, 1986, 31, 579-580.

Kotovsky, K., & Fallside, D. F.; Representation and Transfer in Problem Solving; in D. Klahr & K. Kotovsky (Eds). Complex Information Processing; The Impact of Herbert A. Simon, Hillsdale, NJ: Erlbaum, 1989.

Kotovsky, K., & Simon, H. A.; Why Are Some Problems Really Hard: Explorations in the Problem Space of Difficulty; Cognitive Psychology, 22, 143-183, 1990.

Kotovsky, K. Problem Solving; in Squire, L. (Ed). Encyclopedia of Learning and Memory, New York, Macmillan Publishing Company, 1992.

Kotovsky, K.; Herbert A. Simon (Biography); Sternberg, R. (Ed.) Enclycopaedia of Intelligence, New York, MacMillan Publishing Company, 1994.

Ishida, Y. & Kotovsky, K.; Symmetry Analysis on Symmetry Cognition on Multi-Level Figures; Computers & Mathematics with Applications. Vol. 30, No. 7, pp 93-102, 1995. Pergamon.

Cagan, J., and Kotovsky, K,; Simulated Annealing and the Generation of the Objective Function: A Model of Learning During Problem Solving. Computational Intelligence, 13:4, pp534-581, 1997.

Reber, P., and Kotovsky, K.; Implicit Learning in Problem Solving; The Role of Working Memory Capacity. Journal of Experimental Psychology, General, 126:2, pp178-203, 1997.

Campbell, M., J. Cagan, and K. Kotovsky, A-Design: Theory and Implementation of an Adaptive, Agent-Based Method of Conceptual Design, in: Artificial Intelligence in Design Î98, (J. S. Gero and F. Sudweeks, eds), Kluwer Academic Publishers, Dordrecht, 1998, pp. 579-598.

Campbell, M., J. Cagan, and K. Kotovsky, A-Design: An Agent-Based Approach to Conceptual Design in a Dynamic Environment, Research in Engineering Design, 11:3, 172-192, 1999.

Campbell, M., J. Cagan, and K. Kotovsky, Agent-Based Synthesis of Electro-Mechanical Design Configurations, ASME Journal of Mechanical Design, 122:1, pp 61-69, 2000.

Cagan, J., Kotovsky, K., Simon, H. A., Scientific Discovery and Inventive Engineering Design: Cognitive and Computational Similarities. Formal Engineering Design Synthesis, Antonsin, E. and Cagan, J. eds. Cambridge University Press, Cambridge, pp442-465, 2001.

Klahr, D. & Kotovsky, K., A life of the mind: Remembering Herb Simon. APS Observer 14, no. 4: 2001.

Cronin, M. A., Argote, L., & Kotovsky, K. Specialization and Coordination of Cognition in Group Problem Solving (under review, Journal of Applied Psychology)

Kotovsky, K. " Problem-solving, Large/Small, Hard/Easy, Conscious/Non-conscious Problem-space/Problem-solver,: The Issue of Dichotomization. In J. Davidson & R. Sternberg (Eds.), The Psychology of Problem Solving, Cambridge University Press. 2003.

Campbell, M., Cagan, J., and Kotovsky, K. The A-Design Approach to Managing Automated Design Synthesis, Research in Engineering Design, Vol. 14, 1. pp, 12-24, 2003.

Moss, J., Cagan, J., & Kotovsky, K. Learning from Design Experience in an Agent-Based Design System. Research in Engineering Design, 2004.

Moss, J., Kotovsky, K. & Cagan, The Role of Functionality in the Mental Representations of Engineering Students: Some Differnces in the Early Stages of Expertise. Cognitive Science, 30, 65-93

Olson, J., Cagan, J. & Kotovsky, K., Simulating Collaborative Design: A Computational Platform for Investigating Structural Interdependence in Team Design. under review, AI EDAM (Artificial Intelligence in Design and Manufacturing).

Moss, J., K. Kotovsky, and J. Cagan, "Expertise Differences in the Mental Representation of Mechanical Devices in Engineering Design", Cognitive Science, Vol. 30, No. 1, pp. 65-93, 2006.

Moss, J., K. Kotovsky, and J. Cagan, "The role of functionality in the mental representations of engineering students: Some differences in the early stages of expertise. Cognitive Science, 30(1), 65-93. 2006.

Olson, J., Cagan, J. & Kotovsky, K., Team X: A Case Study in the Conceptual Design of Complex Systems. under review, AI EDAM (Artificial Intelligence in Design and Manufacturing)..

Moss, J., K. Kotovsky, and J. Cagan, "The Influence of Open Goals in the Acquisition of Problem Relevant Information", *Journal of Experimental Psychology: Learning, Memory, and Cognition*, Vol. 33, No. 5, pp. 876-891, 2007.

Tseng, I., J. Moss, J. Cagan, K. Kotovsky, "The role of timing and analogical similarity in the stimulation of idea generation in design," *Design Studies*, Vol 29, pp203-221, 2008.

Olson, J., K. Kotovsky, and J. Cagan, ""Unlocking Organizational Potential: A Computational Platform for Investigating Structural Interdependence in Design," *ASME Journal of Mechanical Design*, Vol. 131, 031001-1- 13, 2009.

Moss, J., K. Kotovsky, and J. Cagan, "When is a Hint Most helpful? The Relationship Between Impasses, Fixation and Implicit Hints", *Journal of Experimental Psychology: Learning, Memory, and Cognition*, (in press).

Moss, J., K. Kotovsky, and J. Cagan, "The Effect of Incidental Hints When Problems Are Suspended Before During Or After An Impasse," *Journal of Experimental Psychology: Learning, Memory, and Cognition*, 2010.

Paynter, C. A., Kotovsky, K. & Reder, L. M. "Problem-Solving Without Awareness: An ERP Investigation. Neuropsychologia. 2013.

Fu, K., Cagan, J., Kotovsky, K. "Design Team Convergence: The Influence of example solution Quality" *ASME Journal of Mechanical Design* Nov. Vol. 132, 111005-1-11, 2010.

Moss, J., K. Kotovsky, and J. Cagan, "The Effect of Incidental Hints When Problems Are Suspended Before During Or After An Impasse," *Journal of Experimental Psychology: Learning, Memory, and Cognition*, Vol. 37, No. 1, pp. 140-148, 2011.

Chan, J., K. Fu, C. Schunn, J. Cagan, K. Wood, and K. Kotovsky, "On the Benefits and Pitfalls of Analogies for Innovative Design: Ideation Performance Based on Analogical Distance, Commonness, and Modality of Examples," accepted: *ASME Journal of Mechanical Design*, Vol. 133, pp. 081004-1-11, 2011.

Tseng, I., J. Cagan and K. Kotovsky, "Form Function Fidelity," *ASME Journal of Mechanical Design*, 2011.

Tseng, I., J. Cagan and K. Kotovsky, "Concurrent Optimization of Computationally Learned Stylistic Form and Functional Goals," ASME Journal of Mechanical Design, Vol. 134, No. 1, pp. 111016-1-11, 2012.

Tseng, I., J. Cagan and K. Kotovsky, "Concurrent Optimization of Computationally Learned Stylistic Form and Functional Goals," submitted to: *ASME Journal of Mechanical Design*, 2011.

Tseng, I., J. Cagan and K. Kotovsky, "Concurrent Optimization of Computationally Learned Stylistic Form and Functional Goals," *ASME Journal of Mechanical Design*, 2012.

Tseng, I., J. Cagan, K. Kotovsky, and M. Wood, "Form Function Fidelity," ASME Journal of Mechanical Design, Vol. 135, No. 1, pp. 01106-1-9, 2013.

Fu, K., J. Chan, J. Cagan, K. Kotovsky, C. Schunn and K. Wood, "The Meaning of "Near" and "Far": The Impact of Structuring Design Databases and the Effect of Distance of Analogy on Design Output," ASME Journal of Mechanical Design, Vol. 135, No. 2, pp. 021007-1-12, 2013.

Fu, K., J. Cagan, K. Kotovsky, and K. L. Wood, "Discovering Structure in Design Databases Through Functional and Surface Based Mapping," ASME Journal of Mechanical Design, Vol. 135, No. 3, pp. 031006-1-13, 2013.

Fu, K., J. Chan, C. Schunn, J. Cagan, and K. Kotovsky, "Expert Representation of Design Repository Space: A Comparison to and Validation of Algorithmic Output," Design Studies, Vol. 34, No. 6, pp.729-762, 2013.

Wood, M. D., K. Kotovsky and J. Cagan, "Team Interaction Improves Problem Solving Performance," Organizational Behavior and Human Decision Processes, 2013.

Wood, M. D., K. Kotovsky and J. Cagan, "Representation Construction and Team Interaction Improve Performance on Complex Problem Solving Tasks", under revision for re-submission.

McComb, C., J. Cagan, and K. Kotovsky, "Rolling with the Punches: An Examination of Team Performance in a Design Task Subject to Drastic Changes," *Design Studies*, Vol. 36, January, pp. 99-121, 2015.

Sio, U., Kotovsky, K., and J. Cagan, "Fixation or Inspiration? A Meta-Analytic Review of the Role of Examples on Design Processes," *Design Studies*, Vol. 39, pp. 70-99, 2015.

McComb, C., J. Cagan, and K. Kotovsky, "Lifting the Veil: Drawing Insights about Design Teams from a Cognitively-inspired Computational Model," *Design Studies*, Vol. 40, pp. 119-142, 2015.

McComb, C., J. Cagan, and K. Kotovsky, "Drawing Inspiration From Human Design Teams for Better Search and Optimization: The Heterogeneous Simulated Annealing Teams Algorithm," *ASME Journal of Mechanical Design,* Vol. 138, 044501-1-6, 2016.

McComb, C., J. Cagan and K. Kotovsky, "Optimizing Design Teams Based on Problem Properties: Computational Team Simulations and an Applied Empirical Test", ASME Journal of Mechanical Design, Vol. 139, 041101-1-12, 2017.

McComb, C., J. Cagan and K. Kotovsky, "Capturing Human Sequence-Learning Abilities in Configuration Design Tasks through Markov Chains," ASME Journal of Mechanical Design, Vol. 139, September, 091101-1- 12, 2017.

Sio, U.N., K. Kotovsky, J. Cagan, "Interrupted: the roles of distributed effort and incubation in preventing fixation and generating problem solutions," *Memory and Cognition*, 2016.

McComb, C., J. Cagan and K. Kotovksy, "Mining Process Heuristics from Designer Action Data via Hidden Markov Models," ASME Journal of Mechanical Design, Vol. 139, No. 11, November, 111412-1-12, 2017.

Sio, U.N., K. Kotovsky, J. Cagan, "The Facilitating Role of Task Alternation on Group Idea Generation," Journal of Applied Research in Memory and Cognition, Vol 6, No. 4, pp. 486-495, December, 2017. http://dx.doi.org/10.1016/j.jarmac.2017.08.005

McComb, C., J. Cagan, and K. Kotovsky, "Data on the Configuration Design of Internet-Connected Home Cooling Systems by Engineering Students", Data in Brief, Vol. 14, pp. 773-776, 2017. 10.1016/j.dib.2017.08.050

Sio, U.N., K. Kotovsky, J. Cagan, "Silence is golden: The effect of verbalization on group performance", Journal of Experimental Psychology: General, Vol. 147, No. 6, pp. 939-944, 2018. http://dx.doi.org/10.1037/xge0000456

McComb, C., J. Cagan, and K. Kotovsky, "Data on the Design of Truss Structures by Teams of Engineering Students", Data in Brief, Vol 18, pp. 160–163, 2018.

Gyory, J., J. Cagan, and K. Kotovsky, "Are You Better Off Alone? Mitigating the Underperformance of Engineering Teams During Conceptual Design Through Adaptive Process Management," Research in Engineering Design, Vol. 30, No. 1, 85-102, 2018. https://doi.org/10.1007/s00163-018-00303-3

Goucher-Lambert, K., J. Gyory, K. Kotovsky, and J. Cagan, "Adaptive Inspirational Design Stimuli: Using Design Output to Computationally Search for Stimuli that Impact Concept Generation," ASME Journal of Mechanical Design, Vol. 142, No. 9, pp. 091401-1-10, 2020. https://doi.org/10.1115/1.4046077

Brownell, E., Cagan, J., and K. Kotovsky, "Only As Strong As The Strongest Link: The Impact of Individual Team Member Proficiency in Configuration Design," ASME Journal of Mechanical Design, Vol. 143, No. 8, pp. 081402-1-10, 2021.

Bayrak, A. E., C. McComb, J. Cagan, and K. Kotovsky, "A Strategic Decision-making Architecture Toward Hybrid Teams for Dynamic Competitive Problems," Decision Support Systems, Vol. 144, article 113490, 12 pages, 2020. https://doi.org/10.1016/j.dss.2020.113490

Gyory, J. T., K. Kotovsky, and J. Cagan, "The Influence of Process Management: Uncovering the Impact of Real-Time Interventions via a Topic Modeling Approach," ASME Journal of Mechanical Design, Vol. 143, pp. 111401-12, 2021.

Sio, U.N., K. Kotovsky, and J. Cagan, "Determinants of creative thinking: The effect of task characteristics on in solving Remote Associate Test problems," Thinking & Reasoning, 30 pages, DOI: 10.1080/13546783.2021.1959400

Chong, L., G. Zhang; K. Goucher-Lambert; K. Kotovsky; J. Cagan, "Human confidence in artificial intelligence and in themselves: The evolution and impact of confidence on adoption of AI advice," Computers in Human Behavior, Vol. 127:107018, (20 pages), 2022.

Gyory, J. T., N. F. Soria Zurita, J. Martin, C. Balon, C. McComb, K. Kotovsky and J. Cagan, "Human versus Artificial Intelligence: A Data-Driven Approach to Real-Time Process Management During Complex Engineering Design," ASME Journal of Mechanical Design, Vol. 144, February, pp. 021405-1-13, 2022.

**Gyory, J. T., K. Kotovsky, C. McComb, and J. Cagan, "Heeding the Advice: The Process-Inspired Impacts and Strategies of Automated and Human Process Management in Interdisciplinary Design Teams," (under review)

Sio, U.N., K. Kotovsky, and J. Cagan, "Determinants of creative thinking: The effect of task characteristics on in solving Remote Associate Test problems," Thinking & Reasoning, 30 pages, DOI: 10.1080/13546783.2021.1959400

Gyory, J. T., N. F. Soria Zurita, J. Martin, C. Balon, C. McComb, K. Kotovsky and J. Cagan, "Human versus Artificial Intelligence: A Data-Driven Approach to Real-Time Process Management During Complex Engineering Design," ASME Journal of Mechanical Design, Vol. 144, No. 2, pp. 021405 (13 pages), 2022.

Ball, Z., J. Cagan, and K. Kotovsky, "Supporting Management of New Product Development via a Novel Conceptual Model: An Interview Driven Approach," accepted: Journal of Engineering, Design and Technology, 2022.

Gyory, J. T., K. Kotovsky, C. McComb, and J. Cagan, "Comparing the Impacts on Team Behaviors Between Artificial Intelligence and Human Process Management in

Interdisciplinary Design Teams," ASME Journal of Mechanical Design, Vol. 144, No. 10, 104501 (6 pages), 2022. doi: https://doi.org/10.1115/1.40547232022.

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Soria Zurita, N. F. , J. T. Gyory, C. Balon, J. Martin, K. Kotovsky, J. Cagan, and C. McComb, "Data on the Human Versus artificial intelligence process management experiment," Data in Brief, Vol. 41, April, 107917, 2022. https://doi.org/10.1016/j.dib.2022.107917

Chong, L., A. Raina, K. Goucher-Lambert, K. Kotovsky, and J. Cagan, "The Evolution and Impact of Human Confidence in Artificial Intelligence and in Themselves on AI-Assisted Decision-Making in Design," ASME Journal of Mechanical Design, Vol. 145, No. 3, March, 031401 (12 pages), 2023. https://doi.org/10.1115/1.

Zhang, G., L. Chong, K. Kotovsky, and J. Cagan, "Trust in an AI versus a Human Teammate: The Effects of Teammate Identity and Performance on Human-AI Cooperation," Computers in Human Behavior, Vol. 139: 107536, 2023. https://doi.org/10.1016/j.chb.2022.107536

Chong, L., G. Zhang; K. Goucher-Lambert; K. Kotovsky; J. Cagan, "Data on Human Decision, Feedback, and Confidence During an Artificial Intelligence-Assisted Decision-Making Task," Data in Brief, Vol. 46, 108884 (6 pages), 2023. https://doi.org/10.1016/j.dib.2023.108884

Brownell, E., J. Cagan, and K. Kotovsky, "A Computational Model of Human Proficiency in Engineering Configuration Design," submitted, 2022

Chong, L., K. Kotovsky, and J. Cagan, "Human Designers' Dynamic Confidence and Decision-Making When Outnumbered by Artificial Intelligence Teammates," submitted, 2022.

Conference Proceedings

Kotovsky, K. & Bliss, J. C.; Tactile Presentation of Visual Information; Bionics Symposium, March, 1963, Dayton, Ohio.

Kotovsky, K. and Kushmerick, N.: Processing Constraints and Problem Difficulty: A Model; Proceedings of the 13th Annual Meeting of the Cognitive Science Society, August, 1991, Chicago, IL. pp. 790-795.

Reber, P., and Kotovsky, K.; Learning and Problem Solving Under a Memory Load. Proceedings of the 14th Annual Meeting of the Cognitive Science Society; 1992. Bloomington, IN. pp. 1068-1073.

Ishida, Y. & Kotovsky, K. Order of Difficulty in Symmetry Recognition of Multi-Level Figures; Circular of the Society for Science on Form, Vol. 9 No. 2., pp 43-46. Tohoku University, Japan, Oct. 1994. ISSN 0915-6089.

Kotovsky, K., Fujimori, Y., Garcia de Osuna, Gottlieb, J. The Strategic Unconscious: Some Problem-Solving Evidence. American Psychological Society, 10th Annual Meeting, Washington, D.C. May 1998.

Gongaware, M. & Kotovsky, K. The Elicitation of Problem-Solving Behavior During Dream States. American Psychological Society, 10th Annual Meeting, Washington, D.C. May 1998.

Ogline, J., Kelly, J. Rode, J., Kotovsky, K. Experiencing Time. American Psychological Society, 10th Annual Meeting, Washington, D.C. May 1998.

Campbell, M., J. Cagan, and K. Kotovsky, "A-Design: Theory and Implementation of an Adaptive, Agent Based Method of Conceptual Design", in: Artificial Intelligence in Design '98, (J. S. Gero and F. Sudweeks, eds), Kluwer Academic Publishers, Dordrecht, 1998, pp. 579-598.

Campbell, M., Cagan, J., and Kotovsky, K. Agent-Based Synthesis of Electro-Mechanical Design Configurations, in: Proceedings of the 1998 ASME Design Engineering Technical Conferences: Design Theory and Methodology Conference, DETC98/DTM-5673, Atlanta, GA, September 13-16, 1998. (Winner: Xerox Best Paper Award)

Garcia de Osuna, J. and Kotovsky, K. Implicit Processes in Sentence Generation, 1999 Annual Meeting of the Association for the Scientific Study of Consciousness, London, Ontario, Canada. June 4-7, 1999.

Kotovsky, K. & Garcia de Osuna, J.; The Strategic Unconscious: Some Problem-Solving and Game-Playing Evidence. Annual Meeting of the Association for the Scientific Study of Consciousness, London, Ontario, Canada. June 4-7, 1999.

Rogier, T., Garcia de Osuna, J. and Kotovsky, K.; Headwaters of the stream of consciousness. Annual Meeting of the Association for the Scientific Study of Consciousness, London, Ontario, Canada. June 4-7, 1999.

Kotovsky, K. & Garcia de Osuna, J.; No Longer Zombies. Tucson 2000: Toward a Science of Consciousness, Annual Meeting of the Association for the Scientific Study of Consciousness, Tucson, Arizona, April 10-15, 2000.

Campbell, M., J. Cagan, and K. Kotovsky, "Learning from Design Experience: TABOO/TODO Guidance", Proceedings of the 2001 ASME Design Engineering Technical Conferences: Design Theory and Methodology Conference, DETC2001/DTM-21687, September 9-12, Pittsburgh, PA, 2001.

Moss, J., Kotovsky, K., & Cagan, J. Cognitive Principles in a Computational Engineering Design methodology. In W. Gray and C. Schunn (Eds.), Proceedings of the Twenty-Fourth Annual Conference of the Cognitive Science Society, Mahwah, NJ. 2002.

Moss, J., Cagan, J., & Kotovsky, K. Learning from Design Experience in an Agent-Based Design system. Paper presented at the Workshop in Agents in Design, Boston, MA. 2002.

Cronin, M. A., Argote, L., & Kotovsky, K. Specialization and Coordination of Cognition in Group Problem Solving. Presented at the Annual Meeting of the American Academy of Management, Denver, CO, 2002.

Moss, J., Kotovsky, K., & Cagan, J. Cognitive Principles in a Computational Engineering Design methodology. In W. Gray and C. Schunn (Eds.), Proceedings of the Twenty-Fourth Annual Conference of the Cognitive Science Society, Mahwah, NJ. 2002.

Moss, J., Cagan, J., & Kotovsky, K. Learning from Design Experience in an Agent-Based Design System. Paper presented at the Workshop on Agents in Design, Boston, MA. 200).

Moss, J., Kotovsky, K., Cagan, J. Knowledge Representation in Engineering Design: An Initial Investigation. Proceedings of the Twenty-Fifth Annual Conference of the Cognitive Science Society, Boston, MA. 2003.

Moss, J., Kotovsky, K., Cagan, J. Cognitive Investigations into Knowledge Representation in Engineering Design. Design Computation and Cognition Conference, MIT, Cambridge, MA. July, 2004.

Kotovsky, K., & Moss, J. Mapping Learning Principles to Knowledge Structures: Disciplinary Knowledge & Skill, Implications for Undergraduate Learning Within and Across Majors, Reinvention Center Conference on Integrating Research into Undergraduate Education: The Value Added", Washington, D.C. Nov. 2004

Olson, J., J. Cagan, K. Kotovsky, "Unlocking Organizational Potential: A Computational Platform for Investigating Structural Interdependence in Design," Proceedings of the 2006 ASME Design Engineering Technical Conferences: Design Theory and Methodology Conference, DETC2006-99464, September 10-13, Philadelphia, 2006.

Moss, J., J. Cagan, and K. Kotovsky, "Design Ideas and Impasses: The Role of Open Goals", *ICED 07: International Conference on Engineering Design*, Paris, August 28- Aug 31, 2007.

Tseng, I., J. Moss, J. Cagan, and K. Kotovsky, "Overcoming Blocks In Conceptual Design: The Effects Of Open Goals And Analogical Similarity On Idea Generation," Proceedings of the 2008 ASME Design Engineering Technical Conferences: Design Theory and Methodology Conference, DETC2008-49276, New York, August 3-6, 2008.

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