

NAVEEN SUNDAR GOVINDARAJULU

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■ EDUCATION

Ph.D., Computer Science

Rensselaer Polytechnic Institute, Troy, New York

August 2013

Bachelor in Engineering (Hons.), Electrical and Electronics Engineering

Birla Institute of Technology and Science, Pilani. India

August 2007

Master of Science (Hons.), Physics

Birla Institute of Technology and Science, Pilani. India

August 2007

■ MAJOR (NATIONAL/INTERNATIONAL) AWARDS

- International Fulbright Science and Technology Award, 2008 – 2011.
- GE Foundation Scholar-Leader Award, 2004 – 2006.

■ PROFESSIONAL EXPERIENCE

1. RAIR LAB, RPI

December 2016 – Now

SENIOR RESEARCH SCIENTIST

- Extending quantified modal logics by adding uncertainty.
- Designing, implementing and extending quantified modal logic theorem provers.
- Building planning systems based in quantified modal logic with uncertainty.
- Foundational work in ethical verification and operating systems.
- Working on two Office of Naval Research projects: 1) *Moral Competence in Computational Architectures for Robots: Foundations, Implementations, and Demonstrations*; and 2) *Advanced Logicist Machine Learning*.
- Co-chair for the upcoming *International Conference on Robot Ethics and Standards 2018*, Troy, NY.

2. WEPAY

July 2016 – November 2016

DATA SCIENTIST

- Machine learning for fraud detection. Improved fraud detection performance by analyzing and using learning systems that can best handle noise and missing data.

3. YAHOO! INC

August 2014 – July 2016

RESEARCH SCIENTIST

- Deep natural language understanding: Designing and building knowledge representation and reasoning systems for deep natural language understanding using modern grammars rooted in formal logic.
- Part of the SkyPhrase team working on Yahoo's deep natural language understanding system. See the following websites for a description of our team's work:
 1. <https://developer.yahoo.com/skyphrase-sdk/>; and
 2. <https://yahooresearch.tumblr.com/post/123387824121/making-apps-understand-natural-language>.

4. RENSSELAER POLYTECHNIC INSTITUTE September 2013 – August 2014
 POSTDOCTORAL RESEARCH ASSOCIATE, RENSSELAER AI & REASONING LABORATORY (RAIR LAB)
- Building formal systems to model ethical & moral reasoning. Implementing reasoning systems for mobile robots based on these formal systems.
 - Implementing reasoning systems from scratch.
 (See <https://github.com/naveensundarg/G> for a state-of-the-art natural deduction prover.)
 - Dynamic QA to extend IBM's Watson.
 - Working on co-authoring books titled *Theorems of Gödel* and *Minds, Machines and Math: A Modern Map*.
 - Co-instructor for the course *Gödel's Great Theorems* in Fall 2013.
 - Helped with Prof. Bringsjord's keynote talk titled "What Does Watson 2.0 Tell Us About the Philosophy & Theory of AI?" at *Philosophy and Theory of AI, Oxford 2013*.
 See <http://www.pt-ai.org/sites/default/files/ptai2013/presentations/Selmer-Bringsjord.pdf>
5. RENSSELAER POLYTECHNIC INSTITUTE August 2008 – August 2013
 FULBRIGHT SCHOLAR (TILL 2011) AND THEN GRADUATE RESEARCH ASSISTANT
- The Robot Devolution Game: Implementing and designing games for crowdsourcing first-order theorem-proving.
 - Research work consists of building synthetic characters that rely on a host of AI, logic, learning, pattern recognition and robotic subsystems. See the flier at http://www.cs.rpi.edu/~govinn/Cogito_under_the_hood.pdf for an overview of the latest incarnation of one such character, Cogito, handled by Naveen at the RAIR Lab.
 - Co-instructor for the course *Minds, Machines and Gödel*, Fall 2012.
 - Guest lecturer for the course *Introduction to Logic* in Fall 2011, Spring 2012 and Spring 2013.
 - Co-instructor for the course *Computational Learning Theory and Science*, Fall 2010.
 - Helped the PI (Prof. Bringsjord) in writing the winning Templeton Foundation proposal titled "*Toward a Markedly Better Geography of Minds, Machines, and Math.*"
 - Met and interfaced with teams from industrial research labs. These include discussions with the Watson/DeepQA team from IBM, the team that won the man-versus-machine Jeopardy contest in 2011, on extending DeepQA into medical domains, and presentations to vice-presidential teams from Disney Imagineering.
6. HP LABS INDIA June 2006 – June 2008
 CONSULTANT, BIOMETRICS AND HANDWRITING RECOGNITION (Intern in the first year)
- Worked on cancelable biometrics.
 - Two granted patents for my research here.
 - Contributed to LipiTk (Dynamic Time Warping and other modules)
<http://lipitk.sourceforge.net>.
 - Built a password manager based on doodles.
7. TATA INSTITUTE OF FUNDAMENTAL RESEARCH (TIFR), MUMBAI May 2005 – July 2005
 VISITING STUDENT RESEARCH PROGRAM
- Studied laser cooling of atoms. Developed a theoretical model for the decay of an atom cloud in an magneto-optical trap and had it verified experimentally.
 - Was preselected for TIFR's prestigious Ph.D. program in Physics.
8. INDIAN SPACE RESEARCH ORGANIZATION May 2004 – July 2004
 INTERN, MISSION CONTROL FACILITY
- Studied various processes and subsystems of geo-synchronous satellites.
 - Built a prototype fingerprint-recognition system.

■ JOURNAL PUBLICATIONS & BOOK CHAPTERS

1. Selmer Bringsjord and **Naveen Sundar Govindarajulu**. "Are Autonomous-and-Creative Machines Intrinsically Untrustworthy?" *Foundations of Trusted Autonomy*, edited by Hussein A. Abbass, Jason Scholz, and Darryn J Reid. (2018): 317-335. (Springer). Print. Open access publication available at: <http://www.springer.com/us/book/9783319648156>
2. Selmer Bringsjord, Alexander Bringsjord and **Naveen Sundar Govindarajulu**. "What Would Poe Say About Today's Social Robots?" *Robophilosophy: Philosophy of, for, and by Social Robotics* edited by Seibt, J., Hakli, R. and Nørskov, M. (forthcoming). (Cambridge, MA: MIT Press). A preprint is available here: http://kryten.mm.rpi.edu/SB_AB_NSQ_PoeSocialRobots_0712171200NY.pdf
3. **Naveen Sundar Govindarajulu**, Selmer Bringsjord, Atriya Sen and Jean-Claude Paquin. "Ethical Operating Systems." *Philosophical Studies* edited by Liesbeth De Mol and Giuseppe Primiero. (forthcoming). (Springer). Print.
4. Selmer Bringsjord, Paul Bello and **Naveen Sundar Govindarajulu**. "Toward Axiomatizing Consciousness." *The Bloomsbury Companion to the Philosophy of Consciousness* edited by Dale Jacquette. (2018) page. 289. (Bloomsbury Publishing). Print.
5. Selmer Bringsjord, John Licato, Daniel Arista, **Naveen Sundar Govindarajulu** and Paul Bello. "Introducing the Doxastically Centered Approach to Formalizing Relevance Bonds in Conditionals." *Computing and Philosophy*, edited by Vincent Müller, (2016): 117-131. (Springer). Print. This volume is *Synthese Library 375, in Studies in Epistemology, Logic, Methodology, and Philosophy of Science*.
6. Selmer Bringsjord and **Naveen Sundar Govindarajulu**. "Leibniz's Art of Infallibility, Watson, and the Philosophy, Theory, & Future of AI." *Philosophy and Theory of Artificial Intelligence: Synthese Library Series*, edited by Vincent Müller, (2016): 185-202. (Springer). Print. Preprint available at: http://kryten.mm.rpi.edu/SB_NSQ_Watson_Leibniz_PT-AI_061414.pdf
7. Joe Johnson, **Naveen Sundar Govindarajulu**, and Selmer Bringsjord. "A Three-Pronged Simonesque Approach to Modeling and Simulation in Deviant 'Bi-Pay' Auctions, and Beyond." *Mind and Society* 13.1 (2014): 59-82. Print. Preprint available at: http://kryten.mm.rpi.edu/JJ_NSQ_SB_bounded_rationality_031214.pdf
8. **Naveen Sundar Govindarajulu** and Selmer Bringsjord. "Ethical Regulation of Robots Must Be Embedded in Their Operating Systems." *A Construction Manual for Robot's Ethical Systems: Requirements, Methods, Implementations*, edited by Robert Trappl, (2016): 85-99. (Springer) Print. Available from Springer at: <http://www.springer.com/us/book/9783319215471>
9. John Licato, Selmer Bringsjord, and **Naveen Sundar Govindarajulu**. "How Models of Creativity and Analogy Need to Answer the Tailorability Concern." *Computational Creativity Research: Towards Creative Machines* (2015): 93-107 (Atlantis Press, Springer). Print. Preprint version available at: http://kryten.mm.rpi.edu/JL_SB_NSQ_tailorability_concern_061014.pdf
10. Simon Ellis, Alexander Haig, **Naveen Sundar Govindarajulu**, Selmer Bringsjord, Joe Valerio, Jonas Braasch, and Pauline Oliveros. "Handle: Engineering Artificial Musical Creativity at the Trickery Level." *Computational Creativity Research: Towards Creative Machines* (2015): 285-308 (Atlantis Press, Springer). Print. Preprint version available at: http://kryten.mm.rpi.edu/Ellis_etal_C3GI_book_2014_042514.pdf
11. **Naveen Sundar Govindarajulu**, Selmer Bringsjord and Joshua Taylor. "Proof Verification and Proof Discovery for Relativity." *Synthese* 192.7 (2015): 2077-2094. Print. Preprint available at: http://kryten.mm.rpi.edu/Govindarajulu-Bringsjord_proof_discovery_verification.pdf

12. **Naveen Sundar Govindarajulu** and Selmer Bringsjord. "The Untenability of Agentless Versions of the Church-Turing Thesis." *Church's Thesis: Logic, Mind, and Nature* (2014): 293-304. (Copernicus Center Press, Kraków, Poland). Print.
Preprint available at:
http://kryten.mm.rpi.edu/NSG_SB_Agentless_Churchs_Thesis.pdf
13. Selmer Bringsjord, **Naveen Sundar Govindarajulu**, Simon Ellis, Evan McCarty and John Licato. "Nuclear Deterrence and the Logic of Deliberative Mindreading." *Cognitive Systems Research* 28 (2013): 20-43. Print.
Preprint available at:
http://kryten.mm.rpi.edu/SB_NSg_SE_EM_JL_nuclear_mindreading_062313.pdf
14. Selmer Bringsjord and **Naveen Sundar Govindarajulu**. "Toward a Modern Geography of Minds, Machines, and Math." *SAPERE* 5 (2013): 151-165. Print.
Available from Springer at:
<http://www.springerlink.com/content/hg712w4123523xw5>
15. Selmer Bringsjord and **Naveen Sundar Govindarajulu**. "Given the Web, What is Intelligence Really?" *Metaphilosophy* 43.4 (2012): 361-532. Print.
Preprint available at:
http://kryten.mm.rpi.edu/SB_NSg_Real_Intelligence_040912.pdf
16. **Naveen Sundar Govindarajulu** and Selmer Bringsjord. "The Myth of 'The Myth of Hypercomputation'." *Parallel Processing Letters* 22.3 (2012): 14 pages. Print.
Preprint available at:
http://kryten.mm.rpi.edu/Univ_Turku_The_Myth_Of_The_Myth.pdf
17. Selmer Bringsjord, **Naveen Sundar Govindarajulu**, Eugene Eberbach and Yingrui Yang. "Perhaps the Rigorous Modeling of Economic Phenomena Require Hypercomputation?" *International Journal Of Unconventional Computation* 8.1 (2012): 3-32. Print.
Preprint available at:
http://kryten.mm.rpi.edu/SB_NSg_EE_YY_28-9-2010.pdf
18. Selmer Bringsjord and **Naveen Sundar Govindarajulu**. "In Defense of the Unprovability of the Church-Turing Thesis." *International Journal of Unconventional Computing* 6.5 (2010): 353-373. Print.
Preprint available at:
<http://www.cs.rpi.edu/~govinn/papers/uc2009.pdf>

■ ABSTRACTS, CONFERENCE & WORKSHOP PROCEEDINGS

1. **Naveen Sundar Govindarajulu** and Selmer Bringsjord (2017). "On Automating the Doctrine of Double Effect." In *Proceedings of the 26th International Joint Conference on Artificial Intelligence*. Melbourne, Australia. <https://doi.org/10.24963/ijcai.2017/658>
2. **Naveen Sundar Govindarajulu**, Selmer Bringsjord, Rikhiya Ghosh, and Matthew Peveler (2017). "Beyond The Doctrine Of Double Effect: A Formal Model Of True Self-Sacrifice." Presented at *International Conference on Robot Ethics and Safety Standards*. October, 2017. Lisbon, Portugal. (Springer book chapter forthcoming in 2018).
3. **Naveen Sundar Govindarajulu** and Selmer Bringsjord (2017). "Strength Factors: An Uncertainty System for a Quantified Modal Logic." In *Working Papers of the IJCAI (International Joint Conference on Artificial Intelligence) 2017 Workshop on Logical Foundations for Uncertainty and Machine Learning*. Melbourne, Australia.
(Papers: <http://homepages.inf.ed.ac.uk/vbelle/workshops/lfu17/proc.pdf>)
4. Selmer Bringsjord, **Naveen Sundar Govindarajulu** Shreya Banerjee and John Hummel (2017). "Do Machine-Learning Machines Learn?". Poster presented at the *Philosophy and Theory of AI 2017* conference. Leeds, UK. <https://www.pt-ai.org/2017/posters>
5. Atriya Sen, **Naveen Sundar Govindarajulu** and Selmer Bringsjord (2017). "Inaugural Steps in a Computational Study of Time Travel." Presented at the *3rd Logic, Relativity and Beyond Conference*.

<http://www.renyi.hu/conferences/lrb17/accepted.html>. Extended abstract:
<http://www.renyi.hu/conferences/lrb17/pdf/Sen--Sundar--Bringsjord.pdf>

6. **Naveen Sundar Govindarajulu** and Selmer Bringsjord (2016). "Crowdsourcing Theorem Proving via Natural Games." In *Proceedings of the Second Workshop on Bridging the Gap between Human and Automated Reasoning (International Joint Conference on Artificial Intelligence 2016 workshop)*. New York City, USA.
 (Proceedings: <http://ratiolog.uni-koblenz.de/proceedings2016.pdf>)
7. Selmer Bringsjord, John Licato, **Naveen Sundar Govindarajulu**, Rikhiya Ghosh and Atriya Sen (2015). "Real Robots That Pass Human Tests of Self-Consciousness." In *Proceedings of the 24th IEEE International Symposium on Robot and Human Interactive Communication (RO-MAN 2015)*. Kobe, Japan. <http://ieeexplore.ieee.org/document/7333698/>
8. **Naveen Sundar Govindarajulu**, John Licato and Selmer Bringsjord (2014). "Toward a Formalization of QA Problem Classes." In *Proceedings of the Seventh Conference on Artificial General Intelligence*. New York, NY.
 (Preprint: http://www.naveensundarg.com/papers/formalizing_QA.pdf)
9. **Naveen Sundar Govindarajulu** and Selmer Bringsjord (2014). "Proof Verification Can be Hard!" Presented at the *10th Conference of Computability in Europe (CiE)*. Budapest, Hungary.
https://cie2014.inf.elte.hu/?Accepted_Papers.
10. Selmer Bringsjord, **Naveen Sundar Govindarajulu**, Dan Thero and Mei Si (2014). "Akratic Robots and the Computational Logic Thereof" Presented at *2014 IEEE International Symposium on Ethics in Science, Technology and Engineering*. Chicago, IL. <http://ieeexplore.ieee.org/document/6893436/>.
11. John Licato, **Naveen Sundar Govindarajulu**, Selmer Bringsjord, Michael Pomeranz and Logan Gittelson (2013). "Analogico-Deductive Generation of Gödel's First Incompleteness Theorem from the Liar Paradox." *Proceedings of the International Joint Conference of Artificial Intelligence, 2013 (IJCAI 2013)*. Beijing, China. <https://www.aaai.org/ocs/index.php/IJCAI/IJCAI13/paper/view/6988>.
12. **Naveen Sundar Govindarajulu**, John Licato and Selmer Bringsjord (2013). "On Deep Computational Formalization of Natural Language." Presented at *Formalizing Mechanisms for Artificial General Intelligence and Cognition, FORMAL MAGIC 2013*. Beijing, China.
13. **Naveen Sundar Govindarajulu**, John Licato and Selmer Bringsjord (2013). "Small Steps toward Hypercomputation via Infinitary Machine Proof Verification and Proof Generation." *Proceedings of Unconventional Computation and Natural Computation 2013*. Milan, Italy.
https://link.springer.com/chapter/10.1007/978-3-642-39074-6_11.
14. **Naveen Sundar Govindarajulu** and Selmer Bringsjord (2012). "Proving Theorems using Uncomputable Games: Examples from Physics." Presented at *Colloquium Logicum 2012*. Paderborn, Germany.
15. Simon Ellis, **Naveen Sundar Govindarajulu**, Selmer Bringsjord, Alex Haig et al (2012). "Creativity and Conducting - Handle in the CAIRA Project." Presented at *Computational Creativity, Concept Invention, and General Intelligence 2012*. Montpellier, France.
16. **Naveen Sundar Govindarajulu**, Selmer Bringsjord and Joshua Taylor (2012) "Proof Verification and Proof Discovery for Relativity." *Proceedings of the First International Conference on Logic and Relativity 2012*. Budapest, Hungary. Conference version available here:
https://s3.amazonaws.com/PAPERS/pv_and_pd_for_relativity.pdf.
17. **Naveen Sundar Govindarajulu** (2012). "Uncomputable Games: Toward Crowd-sourced Solving of Truly Difficult Problems." *Turing Centenary Conference CiE 2012 Abstracts Booklet*. Cambridge UK. Available at:
<http://www.mathcomp.leeds.ac.uk/turing2012/WScie12/Images/abstracts-booklet.pdf>
18. **Naveen Sundar Govindarajulu** and Selmer Bringsjord (2011). "Logic-Based Simulations of Mirror Testing for Self-Consciousness." *Proceedings of the First International Conference of IACAP Celebrating 25 years of Computing and Philosophy (CAP) conferences: "The Computational Turn: Past, Presents, Futures?"*. Aarhus Denmark.

19. **Naveen Sundar Govindarajulu** (2011). "Toward a Logic-based Analysis and Simulation of the Mirror Test." *Proceedings of the European Agent Systems Summer School Student Session*. Girona, Spain. Available at: <http://eia.udg.edu/easss2011/resources/docs/paper5.pdf>
20. **Naveen Sundar Govindarajulu** and Selmer Bringsjord (2011). "The Myth of the 'Myth of Hypercomputation.'" *Proceedings of the Satellite Workshops of UC 2011*. Turku, Finland.
21. Selmer Bringsjord, Joe Johnson, and **Naveen Sundar Govindarajulu** (2011). "Hypercomputation, Artificial Intelligence, and the Future of Economics." *Proceedings of the Satellite Workshops of UC 2011*. Turku, Finland.
22. Selmer Bringsjord and **Naveen Sundar Govindarajulu** (2011). "In Further Defense of the Unprovability of the Church-Turing Thesis." *Studia Logica Conference on Trends in Logic IX: Church's Thesis: Logic, Mind and Nature*. Krakow, Poland.
23. **Naveen Sundar Govindarajulu** and Sriganesh Madhvanath (2007). "Password Management using Doodles." *Proceedings of the 9th International Conference on Multimodal Interfaces*. Nagoya, Japan.

■ INVITED TALKS (not including conference talks noted above)

- **Naveen Sundar Govindarajulu**. (Forthcoming 2018). Invited talk at the *Special Session on Formalising Robot Ethics* at *The International Symposium on Artificial Intelligence and Mathematics 2018*. Fort Lauderdale, USA.
- Selmer Bringsjord and **Naveen Sundar Govindarajulu** (May 2017). "A 13-Strength-Valued Cognitive Calculus That Subsumes Both Quantified BDI Logics and Dempster-Shafer-Based Uncertain First-Order Logic." *Invited Talk for Advances in Cognitive Systems 2017*.
- Selmer Bringsjord and **Naveen Sundar Govindarajulu** (March 2017). "Contextual Deontic Cognitive Event Calculi for Real Robots." *2nd International Workshop on Normative HRI: Ethics of and for Robots*.
- Selmer Bringsjord and **Naveen Sundar Govindarajulu** (2012). "Two Refutations of Hegemonic Bayesianism." *Covey Award (for Bringsjord) Acceptance Speech*. http://www.iacap.org/wp-content/uploads/2014/03/SB_NSG_on_Hegemonic_Bayesianism_0309141300NY.pdf (Presented by S.B.)
- Selmer Bringsjord and **Naveen Sundar Govindarajulu** (2012). "To Infinity and Beyond! Our Mission: To Boldly Go Where No Machine Has Gone, or Ever Will." *Experimental Media & Performing Arts Center (EMPAC), RPI, Troy NY, USA*. (Presented by S.B. & N.S.G.). Presentation files available at
 - Abstract available at http://kryten.mm.rpi.edu/PRES/INFINITYEMPAC/SB_NSG_To_Infinity_at_EMPAC_abstract.pdf
 - Slides available in pdf at http://kryten.mm.rpi.edu/PRES/INFINITYEMPAC/SB_NSG_EMPAC_Infinity.pdf
 - Slides available in source Keynote at http://kryten.mm.rpi.edu/PRES/INFINITYEMPAC/SB_NSG_EMPAC_Infinity.key
- Selmer Bringsjord, **Naveen Sundar Govindarajulu**, Simon Ellis, Joe Johnson, Alexander Haig & Alexander Bringsjord (2012). "Logic-Based Modeling and Simulation of Human-Level Cognition: Methodology Encapsulated, and Four Examples." *Naval Postgraduate School, California, USA*. Presentation files available at http://kryten.mm.rpi.edu/PRES/NPGS_073012/SB_NSG_SE_JJ_AH_AB_NPGS_073012_short.pdf (Presented by S.B.)
- Selmer Bringsjord and **Naveen Sundar Govindarajulu** (2011). "A Modern Map of Minds, Machines and Math." *Templeton Foundation Workshop on Foundational Questions in the Mathematical Sciences*, Traunkirchen, Austria. (Presented by N.S.G.)

■ PATENTS

- Two pending patents (filed from Yahoo Research).
- Method and Computer Program Product for Generating Shortcuts for Launching Computer Program Functionality on a Computer, **US 8214767 B2**. (**Granted** in 2012).
- Authentication System and Method, **US 8700911 B2**. (**Granted** in 2014).

■ OPEN SOURCE PROJECTS

- Common Lisp Actors: An actor-calculus concurrent system for Common Lisp. Now available in the QuickLisp set of libraries as `cl-actors`. One example use can be found in an IRC bot (see <https://bitbucket.org/naryl/xpickbot/>) for the 3D game Xonotic. Also see <http://github.com/naveensundarg/Common-Lisp-Actors>. 13 forks, 60+ stars in Github. In just September of 2017, the library was downloaded 145 times. (Entry under “common-lisp-actors” at <https://www.quicklisp.org/tmp/dls.html>. Archived link: <http://archive.is/4SGI8>)

■ SERVICE

- Co-chair for the upcoming *International Conference on Robot Ethics and Standards 2018*, Troy, NY.
- Program committee member and meta-reviewer for **Cognitive Science 2014** (36th annual conference). Selected reviewers and meta-reviewed referee reports and reviewed submitted papers.
- Referee for **Cognitive Science 2015**, **2016** and **2017**.
- Organized the workshop “*Toward a Serious Computational Science of Intelligence*” at **Artificial General Intelligence 2010** with primary organizer Prof. Bringsjord. Reviewed and selected papers for the workshop.
http://kryten.mm.rpi.edu/WORKSHOPS/AGI10/SB_NSQ_AGI10wshop.pdf
- Contributed to **Google’s Tensorflow**. A very popular tool for deep learning from Google.
<https://github.com/tensorflow/tensorflow/blob/master/RELEASE.md#thanks-to-our-contributors>

■ COMPUTING SKILLS IN KNOWLEDGE REPRESENTATION & REASONING

- Programming Languages: Common Lisp, Clojure, Racket, Prolog, and Haskell.
- Reasoners and Provers: SNARK, Isabelle, ACL2, and Slate.
- Frameworks: Deontic logic, First-order modal logic, Deontic Cognitive-Event Calculus etc.

■ MENTIONS OF MY WORK IN THE PRESS

International, national, or major blogs.

- IBM Watson research at RPI. RPI is the first university to receive the Watson system from IBM.
 1. **Times Union**, *Watson Offers Edge in Big: Data*, 2013:
<http://www.timesunion.com/business/article/Watson-offers-edge-in-Big-Data-4237415.php#photo-4112118>
 2. **Washington Post**, *IBMs Watson goes to school: A Q&A with RPIs Jim Hendler*, 2013:
<http://wapo.st/WVem1B>
 3. **PC Magazine**, Video, 2013: <http://www.pcmag.com/article2/0,2817,2414914,00.asp>
 4. **The Verge**, Video, 2013: <http://www.theverge.com/2013/1/30/3933716/rpi-first-university-to-receive-ibm-watson-system>
- Press coverage around RO-MAN 2015 paper co-authored with Bringsjord et al.
 5. **The Telegraph**, *Robot Passes Self-Awareness Test*, 2015:
<http://www.telegraph.co.uk/news/worldnews/northamerica/usa/11748084/Robot-passes-self-awareness-test.html>

6. **New Scientist**, *Robot Homes in on Consciousness by Passing Self-Awareness Test*, 2015 (also in print under the title "I know its me talking": <https://www.newscientist.com/article/mg22730302-700-robot-homes-in-on-consciousness-by-passing-self-awareness-test/>)
 7. **Popular Science**, *Polite Robots Show Glimmer of Self-Awareness*, 2015: <http://www.popsci.com/polite-robots-show-glimmer-self-awareness>
 8. **CNET**, *Cute Robot Politely Shows Self-Awareness*, 2015: <http://www.cnet.com/news/cute-robot-politely-shows-self-awareness/>
 9. **Engadget**, *Cute Nao Robot Exhibits a Moment Of Self-Awareness* 2015: <https://www.engadget.com/2015/07/17/self-aware-nao-robot/>
 10. **The Escapist**, *This Adorable Robot Just Might Be Self-Aware*, 2015: <http://www.escapistmagazine.com/news/view/141630-Adorable-Robot-From-Rensselaer-Polytechnic-Institute-Shows-Self-Awareness>
 11. **Electronics Weekly**, *Nao Robot Passes Self-Awareness Test*, 2015: <http://www.electronicweekly.com/news/research/nao-robot-passes-self-awareness-test-2015-07/>
 12. **Huffington Post**, *Robot Passes Self-Awareness Test, World Stops Making Sense*, 2015: http://www.huffingtonpost.co.uk/2015/07/17/robot-passes-self-awareness-test-world-stops-making-sense_n_7818454.html
 13. **Irish Examiner**, *Robots Pass Self-Awareness Test*, 2015: <http://www.irishexaminer.com/breakingnews/technow/robots-pass-self-awareness-test-686774.html>
 14. **Elite Daily**, *Its Happening: Robot Passed A Self-Awareness Test And We're Terrified*, 2015: <http://elitedaily.com/news/world/robot-self-awareness-consciousness-test/1115259/>
 15. **Engineering.com**, *Robot Displays Self-Awareness in Logic Puzzle*, 2015: <http://www.engineering.com/DesignerEdge/DesignerEdgeArticles/ArticleID/10473/Robot-Displays-Self-Awareness-in-Logic-Puzzle.aspx>
 16. **TechRadar**, *Uh-oh, A Robot Just Passed the Self-Awareness Test*, 2015: <http://www.techradar.com/news/world-of-tech/uh-oh-this-robot-just-passed-the-self-awareness-test-1299362>
 17. **ScienceAlert** *A Robot Has Just Passed a Classic Self-Awareness Test For The First Time*, 2015: <https://www.sciencealert.com/a-robot-has-just-passed-a-classic-self-awareness-test-for-the-first-time>
 18. **Memeburn**, *What Should We Make of the Fact That Robots Are Now Self Aware?*, 2015: <http://memeburn.com/2015/07/what-should-we-make-of-the-fact-that-robots-are-now-self-aware/>
 19. **io9**, *This Robot Just Passed a Rudimentary Self-awareness Test*, 2015: <http://io9.com/this-robot-just-passed-a-rudimentary-self-awareness-tes-1718582523>
 20. **Headlines & Global News**, *Robot Passes Self-Awareness Test For First Time*, 2015: <http://www.hngn.com/articles/110149/20150716/robot-passes-wise-men-self-awareness-test-for-first-time.htm>
 21. **Digital Journal**, *Robot Shows Self-Awareness During Experiment*, 2015: <http://www.digitaljournal.com/technology/robot-shows-self-awareness-during-experiment/article/438691>
 22. **Daily Mail** *A Very Polite Robot Uprising! Humanoid Shows a Glimmer of Self-Awareness - and Apologises - During Scientific Experiment*, 2015: <http://www.dailymail.co.uk/sciencetech/article-3165282/A-polite-robot-uprising-Humanoids-glimmer-self-awareness-apologises-scientific-experiment.html>
- Work in moral cognition for robots.
 23. **The Conversation** *Artificial Intelligence Researchers Must Learn Ethics*, 2017 <http://theconversation.com/artificial-intelligence-researchers-must-learn-ethics-82754>
 24. **The Atlantic** *The Military Wants to Teach Robots Right From Wrong*, 2014. This article describes the project that RAIR Lab at RPI, Tufts and Brown are working on. <https://www.theatlantic.com/technology/archive/2014/05/the-military-wants-to-teach-robots-right-from-wrong/370855/>

25. **Times of India**, *Soon, Robots that can Make Moral Decisions?*, 2014: <http://timesofindia.indiatimes.com/home/science/Soon-robots-that-can-make-moral-decisions/articleshow/35115795.cms>
 26. **The Hindu**, (one of the two Indian newspapers of record) *U.S. Researchers Trying to Code Sense of Ethics into Robots*, 2014: http://www.naveensundarg.com/press/TheHindu_June_23_2014.pdf
 27. **India Times**, *Soon, Robots that Can Make Moral Decisions?*, 2014: <http://www.indiatimes.com/boyz-toyz/machines/soon-robots-that-can-make-moral-decisions-148398.html>
- Research presented at an event at the American Association for the Advancement of Science (AAAS).
28. **China Daily**, *Academic Excellence Spawns Innovative Ideas*, 2011: http://www.naveensundarg.com/press/chinadaily_june_17_2011.pdf.

■ MINOR AWARDS

- Awards, Scholarships and Grants
 - * Best Academic Performance and Best All-Round Performance Awards for the Physics Class of 2007, BITS-Pilani. Awarded to only one student per year.
- Travel Bursaries
 - * International Association of Computing and Philosophy's Student Travel Bursary for *The First International Conference of IACAP, Celebrating 25 years of Computing and Philosophy (CAP) conferences: "The Computational Turn: Past, Presents, Futures?"*, at Aarhus University, Denmark 2011.
 - * Offered a travel bursary from the *Future of Humanity Institute*, Oxford to travel to the *First Conference on the Philosophy and Theory of Artificial Intelligence (PT-AI 2011)* at Thessaloniki, Greece 2011.

■ SCORES

- **GRE**: 1590/1600, Analytical: 5/6, Verbal: 790, Quant: 800 (August, 2007)
- **TOEFL**: 111/120 (July, 2007)