5th Annual Disability and Change Symposium

The End of Disability? Peril or Promise: Bionics, Implants, and Smart Technologies

AGENDA

- **9 AM Keynote Speaker**
  Teresa Burke, Associate Professor, Philosophy and Bioethics, Gallaudet University

- **10 AM Panel Discussion**
  Technology and Implants (includes the Biomechatronics Program at MIT MediaLab)

- **11 AM Panel Discussion**
  Exoskeletons (includes Magee Rehab and National Museum of American History, Smithsonian)

- **1-2 PM Panel Discussion**
  Temple Students Discuss Disability and Technology

- **2-3 PM Panel Discussion**
  Smart Technology (includes Federal Highway Administration driverless cars initiative and UPC smart homes program)

Don’t forget to visit Maker’s Space

- **10-11 AM**
  3D printing, prosthetics

- **11:30 AM -1:30 PM**
  3D printing, including prosthetics; Augmented Reality, Smart Pens and more
PROGRAM OVERVIEW

About This Year’s Theme

While “disability is a natural part of the human experience” (DDAct 2000), there are extreme variations in the ways in which we, individually and collectively as a society, respond to disability. The breadth of the range is expressed by our title “The End of Disability? Peril or Promise.” This Symposium discusses the future of technology with an eye specifically to our Disability Heritage. With this lens, we examine peril and promise and invite exploration at both ends of the continuum.

Peril

The so-called "End of Disability?" has, for example, historically included societal cleansing where collections of bodies, considered deviant forms, were socially shunned and removed from societal view (Tobin Siebers calls this “The Aesthetics of Human Disqualification” in Disability Aesthetics). The parallel medical implementation included active eugenics through acts like sterilization and “mercy killing.” Other examples, noted by many within, for example, the Deaf community and Autistic Self Advocates, include “cures” in which the desired “end” would be eradication of a culture. The cochlear implant debate is often addressed in these terms (refer to Alicia Ouellette’s “Hearing the Deaf: Cochlear Implants, the Deaf Community, and Bioethicall Analysis”). Does science, in the form of new technologies, reify the peril?

Promise

There is, of course, another polar definition of “end” – a good toward which we are innately pulled. An end that is intrinsic and creative. Rosemarie Garland-Thomson helps illuminate this thought, offering that disability is inherently human and proposes we ask “why might we want to conserve rather than eliminate disability for our shared world”? As she notes, preserving and even encouraging to flourish suggests disability as “a potentially generative resource.” (Rosemarie Garland Thomson, “The Case for Conserving Disability”, Journal of Bioethicall Inquiry.) Can we see creativity at the intersection of disability and technology? How might that creativity provide benefit to society? Are there risks that cannot and should not be overlooked?
From the personal, such as neural implants and exoskeletons, to the environmental, such as driverless cars and smart homes, interdisciplinary panels of speakers will discuss the historic, philosophical/ethical, policy, applied rehabilitative, science/engineering, and first-person perspectives of this controversial range. The companion “maker’s space” makes the conceptual concrete with hands-on examples available for you to experience, including 3-D printed prosthetics (in process), drones, augmented reality, and other assistive technology.

SCHEDULE AND SPEAKER BIOGRAPHIES

8AM Check-In

9AM Welcome

- Michael Smith, Associate Dean, Graduate Programs and Faculty Affairs, College of Education
- Celia Feinstein, Executive Director, Institute on Disabilities, College of Education

9AM Keynote Speaker

- Teresa Blankmeyer Burke: Teresa is an associate professor of philosophy and bioethics at Gallaudet University, the world’s only liberal arts college for deaf and hard of hearing people. She completed her PhD in 2011 at the University of New Mexico. Burke’s research for the most part resides in deaf philosophy, the space where philosophy intersects with Deaf studies. (The use of uppercase Deaf designates the cultural community of signed language users; lowercase deaf designates audiological status). Topics she has published on include moral justification regarding the use of genetic technology to bear deaf children (specifically, the question of signing Deaf potential parents considering this option) and signed language interpreting ethics. Burke has interests in virtue ethics, and is using the professional virtues of signed language interpreters, such as (glossed in ASL) DEAF-HEART and ATTITUDE, as a testbed for
philosophical accounts of the virtues. Another project uses the notion of deaf gain (contra hearing loss) to work through conceptions of intrinsic and instrumental value. Her newest endeavor explores questions related to deaf well-being; works in progress include papers on deaf liberty and full access to language as a good. You can learn more about Teresa and her work here: https://teresablankmeyerburke.net/ and here http://www.gallaudet.edu/department-of-history-philosophy-religion-and-sociology

10AM Panel: Technology and Implants

- **Teresa Blankmeyer Burke**: Associate Professor of Philosophy and Bioethicist. Gallaudet University. *(Her bio was listed earlier under 9 AM time slot – Keynote Speaker).*

- **Cameron Taylor**: Cameron is a research assistant in the MIT Media Lab Biomechatronics Group, where he is furthering the development of brain-controlled prostheses and exoskeletons using advanced neural-interfacing strategies. He envisions a world where technology allows amputees to return to the same or better capacity as before their amputation and where the choice between "normal" and “different” physiology is not only a personal choice, but one which rises above social pressure. You can learn more about the Biomechatronics Group here: [http://www.media.mit.edu/groups/biomechatronics](http://www.media.mit.edu/groups/biomechatronics)

- **Moderator: Cathy Fiorello** is the Department Chairperson, Psychological Studies in Education, College of Education, Temple University. You can learn more about Cathy’s work here: [https://education.temple.edu/faculty/catherine-fiorello-phd](https://education.temple.edu/faculty/catherine-fiorello-phd)

11AM Exoskeletons

- **Katherine Ott**: Katherine Ott, PhD, is a curator and historian in the Division of Medicine and Science at the Smithsonian's National Museum of American History. She is the author or co-editor of three books and has curated exhibitions and published on such topics as the history of disability, medicine, polio, HIV and AIDS, skin, and the use of material culture. She received the 2016 Society for Disability Studies Senior Scholar Award, is an Organization of American
Historians (OAH) Distinguished Lecturer and teaches graduate courses in American Studies at the George Washington University. Ott is a proud alumna Owl and tweets @amhistcurator about her work. You can read learn more about Katherine’s work here: http://americanhistory.si.edu/profile/475

- **Elizabeth Watson:** Liz graduated from Temple University in 2001 with her Masters in Physical Therapy. She continued her education at Temple and received her Doctorate in PT in 2005. She has extensive experience working in neurological rehabilitation and is a Certified Clinical Specialist in Neurology. She currently works as the Supervisor in the Locomotor Training Clinic at Magee Rehabilitation and as a senior instructor for the Christopher and Dana Reeve Foundation NeuroRecovery Network. Liz is a certified user for Ekso, Indego and ReWalk devices. Liz guest lectures for many Philadelphia area universities as well as teaches locomotor training and robotics for neurological residency programs.

Please note that Liz will show a brief video of one particular exoskeleton presented by Ekso Bionics. The exoskeleton, pictured here and in the video, is a wearable battery-powered robotic suit that is strapped onto a person’s body. It helps facilitate standing and walking. The Ekso suit provides a “power assist” option that assists people with their gait. The video will demonstrate an individual walking with the exoskeleton. It also illustrates the hand-held controller for the power assist. Liz will describe the suit and ambulation with the suit as she speaks. To supplement her explanation, please refer to the Ekso website for a detailed <text and video with closed captions> explanation of this product:
https://eksobionics.com/eksohealth/products/ You can learn more about Advanced Robotic Assisted Therapy at Magee here: 

- **Moderator: Nora Jones** is an Assistant Professor in Bioethics and the Associate Director for the Center for Bioethics, Urban Health and Policy at the Lewis Katz School of Medicine. You can learn more about Nora’s work here: https://medicine.temple.edu/nora-jones

**12PM Lunch Break**

- During the lunch break, be sure to visit the Maker’s Space in 200C.

**1PM Welcome Back**

- **Kate Fialkowski**, Director Academic Programs, Institute on Disabilities

**1PM Temple University Student Panel**

- **Thomas Licato**, Boyer College of Music and Dance
- **Maxine Lomax**, School of Social Work
- **Jessica Walker**, College of Public Health
- **Annabelle Wiedorn**, Tyler School of Art
- **Moderator: Amanda DiLodovico** received her PhD in Dance Studies from Temple University in Fall 2017. She currently teaches at Temple University and Swarthmore College. Her research focuses on the intersection of dance studies and disability studies.

**2PM Smart Technology (Driverless Cars and Smart Homes)**

- **Ari Ne’eman**: Ari is the author of *The Right to Live in This World: The Untold Story of Disability in America* (book forthcoming) and a Consultant with the American Civil Liberties Union (ACLU). He is the co-founder of the Autistic Self Advocacy Network and served as its President from 2006 to 2016. In 2009, President Obama nominated Ari to the National Council on Disability, a federal agency charged with advising Congress and the President on disability policy
issues. He was confirmed by the Senate in July 2010 and served until 2015, during which time he chaired the Council’s Committee on Entitlements Policy. From 2010 to 2012, he served as a public member to the Interagency Autism Coordinating Committee, a Federal advisory committee that coordinates all efforts within the Department of Health and Human Services concerning autism. Ari also served as an adviser to the DSM-5 Neurodevelopmental Disorders Workgroup convened by the American Psychiatric Association. He previously served as a member of the National Quality Forum’s Workgroup on Measuring Home and Community Based Services Quality and the Department of Labor’s Advisory Committee on Increasing Competitive Integrated Employment of People with Disabilities. In 2010, Ari was named by the New York Jewish Week as one of their “36 by 36” in 2010. He has a bachelor’s degree from the University of Maryland-Baltimore County, where he studied political science in the Sondheim Public Affairs Scholars Program. You can learn more about Ari’s work here: http://www.arineeman.com/

- **Jacqueline Wardle**: Jackie Wardle has a BS in Special Education and a MS in Education of the Hearing Impaired. She has been employed at UCP Central PA since 1986. She has worked in the field of Assistive Technology since 1991. She is currently the Program Manager for United Cerebral Palsy (UCP) Central PA’s Assistive Technology programs as well as the Independent Living Program. You can learn more about UCP here: http://www.ucpcentralpa.org/

- **Mohammed Yousuf**: Mohammed Yousuf is Program Manager for the Accessible Transportation Technology Research Initiative (ATTRI). He is also co-leading the Universal Automated Community Transport (UACT) research to develop an operational concept for an inclusive automated community low speed transport application; and is involved in research on new technology solutions for wayfinding and navigation guidance for built and pedestrian environments. He is involved in research related to emerging technologies including wireless communications, mapping, positioning and navigation, robotics and artificial intelligence for surface transportation. Prior to joining Federal Highway Administration, he worked at General Motors and Chrysler Group. He serves as the expert advisor to the transportation and technology subcommittee, the national taskforce on workforce development for people with
disabilities and co-chair of the technology subcommittee, Transportation Research Board committee on accessible transportation and mobility. He is a member of Technology for Aging Taskforce, Autism Cares Interagency Workgroup, Intelligent Robotics & Autonomous Systems (IRAS) Interagency Workgroup, Interagency Committee of Disability Research (ICDR) and Transportation Research Board committee on automated vehicles and a former member of FCC Disability Advisory Committee. He has a patent on wireless multiplex systems and methods for controlling devices in vehicle. He holds a BS in Electronics and Communication Engineering and a MS in Computer Engineering. You can learn more about the USDOT’s Accessible Transportation Technologies Research Initiative (ATTRI) here: https://www.its.dot.gov/research_areas/attri/index.htm

- **Moderator: Guy Caruso** is the Western Coordinator for the Institute on Disabilities at Temple. You can learn more about Guy and the Institute here: [Institute on Disabilities Guy Caruso Bio](#)

### ABOUT THE EXHIBITS IN THE MAKER’S SPACE

The objects on display are meant to be experienced – touching allowed and encouraged. Please note, there may be last minute changes/additions to the displays. An American Sign Language (ASL) interpreter will available in the Maker’s Space.

**10:00 AM - 11:00 PM Exhibits**

- **Organization: TEMPLE UNIVERSITY LIBRARIES.** Jennifer Grayburn, Digital Scholarship Center, Paley Library and Patrick Lyons, Innovation Space, Ginsberg Library, Katz School of Medicine. Exhibiting: Ultimaker 3D printer – printing display. Small, white square printer (8.5 x 8.5 x 8 inch dimensions) that costs about $3,500. There are various mediums used to print the objects, and we are using a plastic type material. This material comes on a spool and is fed into the back of the printer. As the printer heats up to over 100 degrees celsius, it melts the plastic into the shape of whatever template that it has been programmed to print. The bottom of the printer moves up and down to accommodate the prints. It begins at the top, and as each layer prints, the
bottom lowers and allows the print to take its shape. Use this link, for more information on this printer: https://ultimaker.com/en/products/ultimaker-3

- **Course: THE BIONIC HUMAN.** James Furmato, Assistant Professor, Department of Medicine, School of Podiatric Medicine, Temple University.
  - Cyborg hand: This prosthetic hand is made of plastic and can be various colors. There are individual finger joints and wires used to mimic tendons and create the functionality of a real hand. You can learn more about this open source project here: http://enablingthefuture.org/current-design-files/cyborg-beast-hand/
  - A wrist brace made at the Ginsberg Library. You can learn more here: https://www.embodi3d.com/blogs/entry/368-3d-printed-wrist-brace/
  - Orthopedic insoles made at the Ginsberg Library. You can learn more here: http://www.resawear.com/insoles.html
  - Printed anatomy models of bone fractures.
  - Printed anatomy model of a human skull. You can learn more here: https://www.thingiverse.com/thing:819046

**11:30AM - 1:30PM Exhibits**

- **Organization: TEMPLE UNIVERSITY LIBRARIES.** Jennifer Grayburn, Digital Scholarship Center, Paley Library and Patrick Lyons, Innovation Space, Ginsberg Library, Katz School of Medicine. (Exhibit description is the same that was listed earlier under the 10 AM time slot).

- **Organization: EYE-TO-EYE.** Temple University, Student Chapter. Mara Bloom, Marisa Kruidenier, Sydnei Davis, and Jessiy Herley. Eye-to-Eye’s mission is to “unlock greatness in the 1 in 5 who learn differently.”
  - **Livescribe Pen:** The Livescribe Pen is a pen that is able to record audio while writing or taking notes. A person can access the recorded audio later to catch up on any missed information. In addition, the pen syncs the audio to whatever the person was writing with the pen at that time. The user can push down on the writing with the tip of the pen and it will automatically start playing the audio that was synced to it. This technology has been helpful for those with learning differences. http://www.livescribe.com/en-us/smartpen/
- **Notability App:** This app is available for $9.99 and offers a range of note-taking capabilities, such as handwriting, drawing, annotating PDFs, making shapes, highlighting, and more. [http://gingerlabs.com/](http://gingerlabs.com/)

- **Utility Belt:** At the Eye-to-Eye table, we will show an example utility belt. This belt is an example of an Eye-to-Eye student art project done as part of peer mentoring. The project involves identifying an individual challenge along with an accommodation that would uniquely support the individual when confronted with the challenge. During peer mentoring, students are given art supplies such as model magic, paper, pens/pencils, glue, stickers, pipe cleaners, and pom poms so they can create their own "utility belt" complete with tangible representations of specific accommodations. Showing the sample utility belt helps to give people a better idea of the value of Eye to Eye peer mentoring.

- **Course: ASSISTIVE TECHNOLOGY.** Ann Dolloff, Instructor & Internship Co-Coordinator, Department of Rehabilitative Sciences, College of Public Health, Temple University.

- **Adaptive Ski:** Adaptive skis allow those with physical disabilities to sit while skiing. There are various versions of skis to specifically fit the person’s needs. You can learn more about adaptive skiing here: [http://adaptiveskiing.net/](http://adaptiveskiing.net/)

- **Rugby Sports Wheelchair:** Rugby sports chairs have angled wheels instead of upright wheels on a standard wheelchair. You can learn more about wheelchair rugby here: [http://www.iwrf.com/?page=about_our_sport](http://www.iwrf.com/?page=about_our_sport)

- **Program: DISABILITY EQUALITY IN EDUCATION.** Alan Holdsworth, M.A. Director and Izzy Kaufman, M.Ed Education Outreach Specialist of Disabled in Action of PA will be available to talk about this Pennsylvania grant initiative, funded by the DD Council. They are actively seeking to work with all Pennsylvania colleges and universities on Disability Equality in Education.

- **Organization: PENNSYLVANIA’S INITIATIVE ON ASSISTIVE TECHNOLOGY (PIAT),** Institute on Disabilities at Temple University. Joanna King, AT Program Coordinator and Kathryn Helland, Augmentative Communications Specialist.
- **HP Reveal**: HP Reveal (formerly Aurasma) is an app where you can access augmented reality experiences, create your own augmented reality (AR), and share these experiences with friends. You can use photos, posters, birthday cards, and more to life with this app. You can learn more about HP Reveal (formerly Aurasma) here: [https://www.aurasma.com/](https://www.aurasma.com/)

- **Merge Cubes**: The Merge Cube is a holographic toy that allows users to physically hold and interact with 3D objects using augmented reality technology. It is low cost at $15, and requires app purchases for your phone. It is compatible with both iOS and Android devices. You can learn more about Merge Cubes here: [https://venturebeat.com/2017/08/01/merge-cube-augmented-reality-toy-debuts-at-walmart/](https://venturebeat.com/2017/08/01/merge-cube-augmented-reality-toy-debuts-at-walmart/)

- **Course**: **ENGINEERING CAPSTONE DESIGN**. S.B. Pillapakkam, Associate Professor, College of Engineering: Mechanical Engineering, Temple University.
  - Nitinol Actuated Prosthetic Hand. Currently, prosthetic arms with well mobilized hands are not only expensive, but also have qualities which cause them to be heavy and uncomfortable for the wearers. The Nitinol Prosthetic Hand employs a metal-alloy as an actuator, incited by currents. Nitinol is also advantageous due to its remarkable flexibility, shape memory and bio-compatibility. While a bit more expensive than the normal metals used in this field, small diameter nitinol wires and/or springs provide the possibility of generating a more biomimetic response in terms of movement and reaction time.
ACKNOWLEDGMENTS

Thank You

Core funding for the Disability and Change Symposium is through a grant from the Center for the Humanities at Temple University (CHAT). This Symposium is co-sponsored by the Institute on Disabilities, the Department of Urban Bioethics, Katz School of Medicine, the Dean of Students, all from Temple University. We also extend our appreciation to Disability Resources and Services for providing Communication Access Realtime Translation (CART) and American Sign Language services for the day.

Statement on Universal Design and Accessibility

The Institute on Disabilities and the Interdisciplinary Faculty Council on Disability welcome all participants to the Disability and Change Symposium. As the audience and panels include people with varied learning styles, aptitudes, and needs, the symposium includes: a downloadable program PDF, an experiential exhibit space for expressive synthesis, sensory-friendly seating, CART transcription services and Sign Language translation. The accessible Symposium location meets ADA guidelines.

About Disability and Change

The goal of this annual symposium is to create conversation that transcends any one-dimensional depiction of people with disabilities, and foregrounds multidimensional lives. The Symposium is an outcome of collaboration with the Interdisciplinary Faculty Council on Disability whose mission is “to foster collaboration across Temple University on disability-related projects including research, teaching, programming, publication, and grant-seeking.” To learn more about the Interdisciplinary Faculty Council on Disability members and mission, go here: https://disabilities.temple.edu/programs/ifc/

To learn more about Disability Studies at Temple, go here: https://disabilities.temple.edu/programs/ds/ds-dashboard.shtml