Design of Medical Devices Conference 2010

April 13th-15th
Radisson University Hotel
Minneapolis, MN

www.dmd.umn.edu
Welcome! We are excited to present the 2010 University of Minnesota Design of Medical Devices Conference. This conference was created in 2001 to enhance collaboration between academia and industry, promote policy, research and educational initiatives as they relate to medical device design and support the graduate fellowship program related to medical devices.

Over the years, this forum, uniquely positioned in the middle of one of the most significant medical device communities in the world, has provided invaluable insight and leadership in promoting the future of this evolving industry. Conference attendance has more than tripled since its inception, and we look forward to continued growth.

The success of this conference is due in large part to the continued support from our University of Minnesota partners and industry sponsors. On behalf of the entire DMD Planning Committee, we thank you. We hope you enjoy this year’s conference!

Sincerely,
Arthur Erdman, Ph.D.
Conference Chair
William Durfee, Ph.D.
Conference Co-Chair
Paul Iaizzo, Ph.D.
Conference Co-Chair
Marie Johnson, Ph.D.
Conference Co-Chair
Just Herder, Ph.D.
Contributed Papers Chair

The Design of Medical Devices Conference is presented by:

- The University of Minnesota’s Institute for Engineering in Medicine’s Medical Devices Center, the Institute of Technology, the Academic Health Center, and the Department of Mechanical Engineering
- In Cooperation with:
  - American Society of Mechanical Engineers
  - Office of Business Relations, University of Minnesota

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At Medtronic, we're changing what it means to live with chronic disease. We're creating therapies that help patients do things they never thought possible. Seeing our work improve lives is a powerful motivator. The more we do, the more we're driven to push the boundaries of medical technology.

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www.OneMedPlace.com - New York, NY
### Applications 1

**Micro-Nano Systems for Medical Applications 1**
- **Session Chair:** Ballroom B
  - Rajesh Rajamani, University of Minnesota

**Neuronal Signal Processing**
- **Session Chair:** Ballroom A
  - Theoden Netoff, University of Minnesota

**Devices for Treatment of Epilepsy**
- Matt Stead
- Mayo Clinic

**Event-based Feedback Control: An Overview with Applications to Neuromodulation**
- Per Danzí
- University of California Santa Barbara

**A Closed-loop Neural Prosthesis for Epilepsy: Whole System Design, Integration and Validation**
- Pedro Irazoqui
- Purdue University

### Cardiovascular 1

**Innovations in Cardiovascular Devices**
- **Session Chair:** Ballroom B
  - Johnson Great Room
  - Tianhong Cui, University of Minnesota

**Tissue Elasticity Measurements**
- Peng Peng
- University of Minnesota

**Three-In-Five Competition**
- **Session Chair:** Ballrooms C-D
  - Marie Johnson, University of Minnesota

**Competition Presentations:**
- **The Quickstand: A Portable Device to Facilitate Standing Up**
  - Ewout Arkenbout, Delft University of Technology

- **An Articulating Tool for Endoscopic Screw Delivery**
  - Joseph Petrezka, Massachusetts Institute of Technology

**Knowledge Based Product Development 1**
- **Session Chair:** Ste-U-Mab
  - Randy Schiestl, Boston Scientific Corporation

**Call for Innovation**
- Randy Schiestl
- Boston Scientific Corporation

**Design of a Micro Free Flow Electrophoresis**
- Michael Bowser
- University of Minnesota

**Miniaturized Affinity Biosensors for Continuous Glucose Monitoring Applications**
- Qiao Lin
- Columbia University

**A Novel Tactile Sensor for Tissue Elasticity Measurements**
- Peng Peng
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**Micro-Nano Systems for Medical Applications 2**
- **Session Chair:** Ballrooms C-D
  - Julie Jacko, University of Minnesota

**Medical Instrumentation: Automating Clinical ICSI**
- Yu Sun
- University of Toronto

**Bumps, Sweat and Blister: Medical Devices to Detect Chemotherapeutic and Diabetic Neuropathy**
- William Kennedy
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**Microelectrodes to Determine Ion and Solute Transport in Cells – Tools for Acidosis, Cystic Fibrosis, Malaria, Glaucoma and Kidney Stones**
- Michael Romero
- Mayo Clinic College of Medicine

**Health Informatics**
- **Session Chair:** Ballrooms C-D
  - Julie Jacko, University of Minnesota

**IRIS**
- Kevin Peterson, ePCRN

**Unlocking the EHR with Natural Language Processing and Knowledge Representation**
- Genevieve Melton-Meaux
- University of Minnesota

**Post-market Surveillance of Devices: Consumer Tools**
- Jim Friction
- University of Minnesota

**Reaching Remote Patients - Telehealth Overview**
- Mary DeVany and Zoi Hills
- University of Minnesota

**Neuroengineering 2**
- **Session Chair:** McNamara Alumni Center
  - Taner Akkin, University of Minnesota

**Neural Imaging**
- **Session Chair:** McNamara Alumni Center
  - Johnson Great Room
  - Tim Laske, Medtronic, Inc.

**Sponsored by Boston Scientific Corporation**
- **Moderators:** Arthur Erdman, Conference Chair; Mary DeVany and Zoi Hills

**Concurrent Technical Sessions**
- **Prefunction Area**
  - 7:00 am - 8:15 am
  - Registration and Continental Breakfast
  - Ballroom A-D

**Keynote Address:**
- Development of a Neural-Machine Interface for Artificial Limbs
  - Todd Kuiken
  - Northwestern University

**Neuroengineering 1**
- **Session Chair:** Ballroom A
  - Theoden Netoff, University of Minnesota

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  - Ballroom A-D
CARDOVASCULAR 2
DEVICES OF THE FUTURE, THERAPIES IN 2010 AND BEYOND - LET'S GET REAL

Johnson Great Room

Session Chair: Richard Blanco, University of Minnesota

The Three Tenets of Good Valve Design: Where Transcatheter Valves Fail
Ivan Vessley
ValveXchange, Inc.

Magnetic Vascular Intervention
Robert Levy
University of Pennsylvania School of Medicine

History of the Mechanical Valve and an Early Look at Kips Bay Medical eMesh
Manny Villafana
Kips Bay Medical

KNOWLEDGE BASED PRODUCT DEVELOPMENT 2

McNamara Alumni Center

Session Chair: Randy Schiestl

Crossing the Corporate Abyss
Kevin Ward
St. Jude Medical
Randy Schiestl
Boston Scientific Corporation

3:30-4:00 pm

SPONSOR EXHIBIT SHOWCASE

4:00 pm - 5:30 pm
Concurrent Technical Sessions

ASME COMMITTEE ON VERIFICATION AND VALIDATION IN COMPUTATIONAL METHODS FOR MEDICAL DEVICES

Ballroom A
Ryan L. Crane, ASME

ASME is developing a committee within the Standards & Certification sector that will produce a standard to address verification and validation (V&V) in computational methods for medical devices. All interested parties are invited to attend and ASME is seeking individuals to participate in the standard development process. This standard will be written in accordance with the ANSI-accredited procedures for development committees, which establishes consensus.

MICRO-NANO SYSTEMS FOR MEDICAL APPLICATIONS 3

Ballroom B
Sang-Hyun Oh, University of Minnesota

Single Muscle Fiber Analysis
Edgar Arriaga
University of Minnesota

Fluorescence Noise Reveals Stoichiometries and Binding Curves of Proteins in the Living Cell
Joachim Mueller
University of Minnesota

Novel Integrated Optical Micro-Resonators for Ultra-Sensitive Bio-Sensing
Terry Smith
3M

MEDICAL SIMULATION TRAINING

Balloons C-D

Session Chair: Betsy Lulfs, Minnesota Office of Technology

Simulation-Based Training: A New Paradigm for Medicine
J. Harvey Magee
TATRC

The Minnesota Human Tissue Property Database: Laying the Foundation for Simulation Sciences and the Future of Device Development
Rob Sweet
University of Minnesota

CARDOVASCULAR 3
DEVICES IN THE PEDIATRIC POPULATION: CURRENT ISSUES AND UNRESOLVED TECHNICAL BARRIERS

Johnson Great Room

Session Chair: James St. Louis, University of Minnesota

Mechanical Support of Failing Fontans: Technical Barriers to Application
Mark Flunkett
University of Kentucky

Intravascular Stent Implantation for Congenital Heart Disease: State of the Art and Limitations of Current Stent Technology
Daniel Gruenstein
University of Minnesota

Ventricular Assist Devices in the Pediatric Population: Barriers to Self-Contained Implantation
Roosevelt Bryant
University of Minnesota

ENTREPRENEURSHIP

Ski-U-Mah

Session Chairs: Karen Kaehler, University of Minnesota; Doug Johnson, University of Minnesota

Panel Discussion: Upping the Ante or is the Deck Stacked Against Medical Device Entrepreneurs?
David Stassen
Split Rock Partners, LLC
Mark DuVal
DuVal & Associates, P.A.
Mark Leahey
Medical Device Manufacturers Association

MEDICAL DEVICE INDUSTRY JOB FAIR

Humphrey Ballroom

5:30pm

Participating Companies:
Coloplast
EV3
HUI
Medtronic, Inc.
Minnetronix, Inc.
Pace Analytical
RCRI, Inc.
St. Jude Medical

MIMTEC INFORMATIONAL & COLLABORATIVE SESSION

5:30 pm

Ballroom A

Foster Stulen, Ethicon Endo-Surgery; Ken Rosen, University of Minnesota

A brief overview of Minimally Invasive Medical Technologies Center, a National Science Foundation Industry/University Cooperative Research Center, followed by a collaborative discussion of key issues affecting the Medical Device Industry and brainstorming session on research that can address these issues.

Invitation Only

7:30 pm

ADJOURN

2010 Conference CD containing presentation powerpoints will be mailed to all attendees 6-8 weeks after the conference.
**Wednesday, April 14**  
*(Day 2, Design of Medical Devices Conference)*  
7:15 - 8:15 a.m., Ballroom C - D

Presenting research is an important part of academic and career development. Unfortunately, research doesn't speak for itself, whether to a faculty advisor, employer, or investor. Defending one's research academically is a very different experience from promoting its value to a supervisor or potential investor.

LifeScience Alley will host a special breakfast session on Day Two of the Design of Medical Devices Conference. Industry professionals will form a panel providing constructive advice on how best to position research to faculty advisors, employers, and funders. The session will include a live role-play example critiqued by the panelists.

### Presenting Your Research to Employers vs. Academics

**MODERATOR**  
*Larry Kuusisto, Ph.D.*, VP of Education,  
LifeScience Alley; Executive Director,  
Alley Institute

**SPEAKERS**  
*Mary Jo Zidwick, Ph.D.*, Research  
Fellow, Cargill Biotechnology Development  
Center; Competition Judge,  
BioGENEius competition  
*Gerry Timm, Ph.D.*, President, GT  
Urological  
*Dennis Wahr, M.D.*, President & CEO,  
Lutonix
BIOIMATERIALS & REGENERATIVE MEDICINE

Session Chair: Balakrishna Haridas, Device & Implant Innovations LLC

Injectable Polymeric Scaffolds for Drug Delivery and Tissue Regeneration
Scott Guelcher
Vanderbilt University

Absorbable Polymers from Functionalized Drugs
Rao Bezwada
Bezwada Biomedical LLC

Biologic-Derived Scaffolds for Tissue Regeneration
David McQuillan
LifeCell Corporation

MEDICAL DEVICE INNOVATION 2

Session Chair: Marie Johnson, University of Minnesota; Stephen Parente, University of Minnesota

Blue Collar Innovation
David Boudreaulet
UCSF East Bay General Surgery Program

Israel's Dynamic Environment for Start-Ups, An Opportunity for Minnesota
Harlan Jacobs
American Israel Chamber of Commerce of MN

Keiretsu Capitalism-A New Venture Model
Michael Moe
Global Siliccon Valley Partners

CARDIOVASCULAR 5

IMPROVING IMAGING AND THERMAL ABLATION

Session Chair: John Bischof, University of Minnesota

7T MRI: a New Tool for Cardiac Imaging
Tommy Vaughan
University of Minnesota

RF Ablation in the Heart
Sarah Ahlberg
Medtronic, Inc.

Cryotherapy in Cardiovascular Disease
Ramji Venkatasubramanian
St. Jude Medical

HUMAN FACTORS 2

Session Chair: Richard Stein, Starkey Laboratories, Inc.

Myths and Fantasies in Working to Make Devices Usable
Stephen Wilcox
FIDSA

Case Study - HF E in the Design of a Touchscreen IV Infusion Pump
Edmond Israelski
Abbott

2:00 pm - 3:30 pm
Concurrent Technical Sessions

LIVE SURGERY
Memorial Hall
McNamara Alumni Center

Laparoscopic Colectomy
Moderator: Dr. Robert Madoff, Department of Surgery, University of Minnesota

Dr. Genevieve Melton-Meaux, Department of Surgery, University of Minnesota will be performing a laparoscopic colectomy operation at the University of Minnesota Medical School-Surgical. The surgery will be transmitted to the conference room via live video feed. The objective of the session is to discuss the limitations and design opportunities for the tools and devices used in modern surgery. Dr. Madoff will be in the conference room to explain and show the use of each tool and to take questions from the audience. There may be a collection of surgical tools for the audience to manipulate. The session will open with a brief tutorial by Dr. Madoff on the surgical procedure.

2:00 pm - 3:30 pm
Concurrent Technical Sessions

THE ROLE OF THE INTERNET IN BRINGING MEDICAL INNOVATION TO MARKET

Session Chair: Brett Johnson, OneMedPlace

Development. In the process of refining the core concept developing the prototype, this section will look at using the Internet to find and collaborate with others who can add value, who may have already done something similar. How does one use the Internet to develop product and plan without giving up proprietary information? What are the best online resources to research what has been done before?

Funding. Raising capital. This section will look at approaches to reach a global audience to find investors. It will look at emerging areas such as video on the Internet to communicate an investment proposition. It will consider viral strategies and focused micro media vehicles such as, Twitter, Linked, Facebook can help entrepreneurs find investors around the world.

Marketing. Section three is all about reaching the product out. What tools and resources exist to get it launched? How does one use the Internet to develop networks of interested parties, maintain those networks efficiently? What role does Search Engine Optimization and website design play in the branding, distribution and promotion process? How does one develop followers on Twitter, Facebook, and LinkedIn? This section will also consider on line partnering systems and technology transfer web sites.

ANESTHESIA AND MONITORING

Session Chair: Mike Loushin, University of Minnesota

Physiologic Monitors and Automated Charting Systems in Anesthesiology
Laurence Torsher
Mayo Clinic

Noninvasive Monitoring in Anesthesia
Martin Birch
University of Minnesota

Regional Anesthesia: Considerations for Future Pain Control
John Mrachek
Abbott Northwestern Hospital

3:30 pm-4:00 pm
SPONSOR EXHIBIT SHOWCASE

3:30 pm-5:30 pm
SCIENTIFIC POSTER SESSION 1

A complete list of titles and authors can be found within this program.
Thursday, April 15th
Symposium: Regulatory Issues and Medical Devices

7:00 am | Registration and Continental Breakfast

8:00 am - 9:30 am | Ballrooms A-D

WELCOME AND INTRODUCTION
Prof. Paul A. Iaizzo, PhD
Program Chair, Associate Director for IEM, University of Minnesota
Prof. Frank Cerra, MD
Senior Vice President for Health Sciences, AHC, U of MN, McKnight Presidential Leadership Chair

PLENARY SESSION
Moderator: Philip Ebeling, St. Jude Medical

Keynote 1:
Innovation Ecosystems for a Creative Economy: Medical Devices Improving Human Health
Thomas C. Skalak, Ph.D., Vice President for Research and Professor of Biomedical Engineering, University of Virginia, President, American Institute for Medical and Biological Engineering

Keynote 2:
International Medical Device Regulatory Process: A Comparative Review
Stephen T. Parente, PhD, Academic Director, Medical Industry Leadership Institute (MILI), Associate Professor, Department of Finance in the Carlson School of Management, University of Minnesota

9:30 am - 10:00 am | Ballrooms A-D

SPONSOR EXHIBIT SHOWCASE

10:00 am - 11:30 am | Ballrooms A-D

COMPUTER-AIDED DESIGN OF MEDICAL DEVICES
Moderator: Philip Ebeling, St. Jude Medical

Keynote 3:
Presenting your Device to an FDA Panel for Approval
Susan Alpert, Ph.D., M.D., Senior Vice President, Chief Regulatory Officer, Medtronic

Keynote 4:
The Role of an FDA Panel Member in the Regulatory Process
Stephen Haines, MD, FACS, Lyle A. French Chair and Head of the Department of Neurosurgery, University of Minnesota

10:00 am - 11:30 am | Concurrent Technical Sessions

8:00 am - 9:30 am | Concurrent Technical Sessions

ENGINEERED TISSUES
Session Chair: McNamara Alumni Center
Robert Tranquillo, University of Minnesota

Toward a Tissue Engineered Pulmonary Valve: Progress and Problems
John Mayer, Jr.
Harvard Medical School

Development of Human Tissue Engineered Arteries
Zeeshan Syedain
University of Minnesota

The Use of a Polyacrylamide Matrix for Tissue Engineering and Release of Biologic Agents
Jeffrey Ross
Suromodics

Cell Based Insulin Replacement Therapies
Klearchos Papas
University of Minnesota

OPPORTUNITY ID AND USER INTERACTION IN MEDICAL DEVICE DESIGN
Session Chair: McNamara Alumni Center
Mary Beth Privitera, University of Cincinnati

The Impact of User Research & Industrial Design on Medical Device Innovation
Sean Hägen
BlackHägen Design

A Problem Well Defined is Nearly Solved
Ryan Lewis and Mary Beth Privitera
University of Cincinnati

11:45 am | Memorial Hall

LUNCH, AWARD AND KEYNOTE
Moderator: Philip Ebeling, St. Jude Medical
Sponsored by St. Jude Medical

Three-in-Five Awards
Presented by: Marie Johnson, University of Minnesota

Medical Devices and New Pathways to Healthcare
Roderic Pettigrew, Ph.D., M.D., Director of the National Institute of Biomedical Imaging and Bioengineering
(Keynote lunches are a separate billable event, meal tickets are required.)

2:00 pm - 3:30 pm | Humphrey Ballroom

SCIENTIFIC POSTER SESSION 2
A complete list of titles and authors can be found within this program.

2:00 pm - 3:30 pm | Ballrooms A-D

SPONSOR EXHIBIT SHOWCASE

3:30 pm | Tours
Tour departures will take place near the Registration Desk. You will be escorted to the facility. See the tour ads on the next page of the program for more information on each of these facilities.

EXPERIMENTAL SURGICAL SERVICES
www.ess.umn.edu/

MEDICAL DEVICES CENTER
www.mdcenter.umn.edu/

SimPORTAL
www.simportal.umn.edu/index.html

THE VISIBLE HEART LABORATORY
www.vlab.umn.edu/

3:30 pm | ADJOURN
Tours will take place on Thursday, April 15th at 3:30 PM.

If you wish to attend a tour, please meet at the registration table on the second floor of the Radisson University Hotel.

**Medical Devices Center**

The Medical Devices Center at the University of Minnesota is a unique interdisciplinary program that resides within the Institute for Engineering in Medicine. The MDC aims to strengthen interdisciplinary research among faculty in the health sciences and engineering in areas specifically related to medical devices. The center trains the next generation of medical device inventors (including the Innovation Fellows Program) and fosters new relationships with the medical device industry and government agencies to improve health care worldwide.

The tour will highlight the nearly 4,000 square ft. facility that is configured to promote interdisciplinary medical device development including needs assessment, creative brainstorming, prototyping and testing.

**Experimental Surgical Services**

At Experimental Surgical Services, we are experts in designing and conducting the appropriate research to determine the safety and efficiency of medical devices. We have 25 years experience in pre-clinical assessment for the medical industry. In fact, we are the industry leader in researching and testing cardiac devices and surgical techniques. We complete over 500 open heart procedures a year and over 1,500 procedures annually.

ESS is Directed by Richard W. Bianco who has 25 years of experience in the pre-clinical assessment of virtually every animal model. The ESS staff of in-house surgeons work with device companies to develop and validate research methods, provide consultation as necessary and offer interpretative and technical support.

**SimPORTAL**

SimPORTAL (Simulation PeriOperative Resource for Training and Learning) is the primary simulation training “portal,” or point of entry, for the procedurally oriented departments within the Medical School at the University of Minnesota. It arranges for, or directly provides space, equipment, technical and logistical support for educational activities involving technical skills and team training via simulation. Via the Center for Research in Education and Simulation Technologies (CREST), it also supplies research and evaluation capacity to support innovation in simulation equipment, tools, and processes as well as training curricula.

The mission of SimPORTAL is:

“To augment the procedural training needs of medical professionals through leadership in the use and development of simulation resources.”

**THE VISIBAL HEART® LABORATORY**

Dr. Paul Iaizzo has been at the University of Minnesota since 1990, performing research and teaching graduate and undergraduate courses. In 1997, Dr. Iaizzo and his coworkers created the Visible Heart® laboratory in collaboration with Medtronic, Inc. Today, this lab is a premiere place to perform translational systems physiology research that ranges from cellular and tissue studies to organ and whole body investigations. The Lab also had a unique human heart library. The Visible Heart® lab embodies a creative atmosphere which is energized by some of the best and brightest students at the University. Our lab staff has over 100 years of collective research experience and functions as a highly efficient and productive team.
The Medical Devices Center at the University of Minnesota is a unique interdisciplinary program that resides within the Institute for Engineering in Medicine. The center has a combined mission of basic research, applied and translational research education and training as well as outreach and public engagement all related to medical devices.

The Medical Devices Center aims to strengthen interdisciplinary research among faculty in the health sciences and engineering specifically related to medical devices. The center trains the next generation of medical device inventors and fosters new relationships with the medical device industry and government agencies to improve health care worldwide.

The MDC has many roles within the U of M including:

- Accelerating interdisciplinary medical device R&D
- Funding new medical device projects based on a rigorous peer review process
- Maintaining a core lab with common use equipment for creative prototyping
- Facilitating connections to other centers and labs
- Supporting UMN functions related to medical devices
- Supporting UMN teaching and training programs of departments related to medical devices
- Interfacing with the medical device industry
- Improving health care world-wide
Wireless internet access is available in the Alumni room to DMD Conference attendees.

Connect to wireless network: DMD_Conference

With case-sensitive password: Regulatory
The Medical Devices Center Innovation Fellows Program is a full immersion educational and product development program. Each Fall, the MDC Fellows Program brings together a cross-disciplinary team comprised of postgraduate engineers, seasoned medical device professionals and physicians to develop medical devices across a broad range of clinical areas. The team, led by Dr. Marie Johnson, collaborates for one year to identify and solve unmet clinical needs through a disciplined decision making technique which includes consideration of FDA regulatory pathway, insurance reimbursement, intellectual property and business strategies. This one-year product development program includes identification, development, prototype and test of medical devices.

The Fellows Program curriculum includes formal instruction in product development and innovation. Fellows observe surgery, attend medical rotations, and participate in medical device company visits. In addition, the Fellows teach, share and learn by mentoring undergraduate and graduate student design teams across the Institute of Technology, and support the Design of Medical Devices conference. MDC Fellows work with faculty collaborators from both engineering and medicine. The program generates a minimum of 20 patent disclosures for advanced novel medical technologies over the course of the year.

Application deadline for 2010-11 Fellowship: April 18, 2010

The University of Minnesota Medical Innovation Fellows Program is sponsored by the UMN Medical Devices Center, part of the Institute for Engineering in Medicine. The University of Minnesota is recruiting a four person cross-disciplinary team consisting of postgraduate engineers, seasoned medical device professionals, bioscientists and physicians to collaborate in medical device product and development for the year. Applicants must be dedicated to the creation of new medical devices to improve human health and well being. Those with a special interest in medical technology development are encouraged to apply as are physicians in their residency or fellowship training.

Responsibilities:
• Identifying clinical needs, inventing, and creating & testing prototype solutions.
• Generating at least 20 patent disclosures related to medical devices or diagnostics.
• Attending rotations/rounds at the University of Minnesota Academic Health Center and visiting the surrounding medical device industry.
• Mentoring to engineering design student groups.

Eligibility:
• Degree in engineering, medicine, or biosciences. Medical or Doctorate degrees preferred.
• Evidence of innovation.
• One or more years of research training required.

Benefits:
• Monthly salary and health benefits are provided for one year starting August 30, 2010.
• Use of first class facilities in engineering & medicine at the University of Minnesota.
• Access to top MD’s, PhD’s and professors at the University of Minnesota and local industry.

How to Apply: Submit a cover letter, resume or curriculum vitae, statement of medical device product development interests, and contact information for three references. For more information please see the Medical Devices Center website www.mdc.umn.edu (Requisition Number 165074). Applications will be accepted until April 18th, 2010.

Please note: Positions will be filled as qualified applicants apply. If you have questions or would like further information, please contact Dr. Marie Johnson, mariej@umn.edu or 612.624.1060.

Sponsorships Available for 2010-2011

Named Fellow Sponsor Privileges
• Named annual fellowship sponsor
• Membership on the MDC Fellows Program Advisory Board
• Annual on-site seminar/workshop with MDC Fellows
• Special receptions at events
• Two seats at the annual DMD conference
• Early information about research findings and technology
• Access to MDC Facilities

Fellows Program Affiliate Privileges
• Information about upcoming research findings, technologies, and licensing opportunities
• Special reception at a Spring Open House

Contact Marie Johnson (612) 624-1060
mariej@umn.edu
Poster Number | Title | Authors
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2 | A Breakthrough from an unexpected Corner: Turning an old technology into a Paradigm Shift. | Dietmar Winzker, Leon Pretorius
3 | A Case Study of Physician Interaction in the Medical Device Development Process | Lauren Aquino Shluzas, John H. Linehan, Larry J. Lieber
4 | A New Actuation System with Simulated Electrocardiogram Signal for MR Elastography | Cheekong Chui
5 | A Problem Well Defined Is Nearly Solved | Ryan Lewis
6 | A Testbed for Multi-Lumen Steerable Needle Experiments | Robert J. Webster III, D. Valeb Rucker, Jadav Das
7 | Active Management of Healthcare Operations: A Dynamic System View of Healthcare Delivery | Dennis Moen, Lynn Meredith
8 | Adult Male Circumcision Tool For Use In Traditional Ceremonies | Thomas F. Van Wingen, Kathleen H. Sienko, Kyle A. Lemmermen, Craig Spencer, Phil Scott
9 | An Improved Smart Ankle Foot Orthosis Design Using Dual Fluid Power Cylinders | Manish Palival, Ricky Mehta, Eric L. Rohrs, Katarina F. Lipat, Evan C. Reed
10 | Automatic Oxygen Delivery System for Premature Babies | Thao P. Do, Devin S. Coulter, Lindsay J. Eubank, John M. Freihaut, Carlos E. Guevara, Alfred Wicks, Andre A. Muelenaer
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16 | Design And Performance Of Plastic Modular Adaptors For External Transtibial Prostheses | Rafael R. Tomaiba, Carmen M. Muller-Kanger
17 | Design and Prototyping of a Low-cost Portable Mechanical Ventilator | Abdul Mohsen Al Hussein, Alexander H. Bloicum, Amelia Tepper Servi, Heon Ju Lee, Stephen Powelson, Justin Negrete, Jussi Saultukonen
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20 | Design of a Wearable Fingertip Haptic Braille Device | Mohamed Trabia, Mohammad Saadeh, Sami Fadali, Yantao Shen
21 | Design of an Endoscope Lens Shielding Device for use in Laparoscopic Procedures | Sterling Anderson, Julia Zimmerman, Kevin Farino, Nikolai Begg Emily Houston
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