MANUEL OCHOA

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EDUCATION

2012–2016 **Purdue University—West Lafayette, IN**

Doctor of Philosophy

School of Electrical and Computer Engineering
Dissertation: *Laser-processed parchment paper for fabrication of chronic wound dressings with selective oxygenation*
Major Advisor: Prof. Babak Ziaie

2009–2012 **Purdue University—West Lafayette, IN**

Master of Science in Electrical and Computer Eng.

School of Electrical and Computer Engineering
Thesis: *A piezoelectrically actuated titanium micropump for drug delivery*
Major Advisor: Prof. Babak Ziaie

2005–2009 **California Institute of Technology—Pasadena, CA**

Bachelor of Science

Department of Electrical Engineering
Thesis: *Hardware Implementation of Visual Odometry Algorithm*
Advisors: Prof. Pietro Perona and Dr. Larry Matthies

WORK AND RESEARCH EXPERIENCE

2018–Present **Technology Consultant**

- Provide data analysis and scientific expertise focused on emerging technologies for medical and environmental applications to support my clients' business development teams; clients include startups and an innovation group within a Fortune 100 company.

2017–2018 **Senior Scientist**

SmartGait, LLC

- Led an NSF SBIR project as Principal Investigator at SmartGait LLC, a start-up company which develops wireless portable systems for gait monitoring and analysis in gait-compromised patients.
- Developed a custom software suite in Python for analyzing SmartGait data; currently using this suite to develop algorithms for determining fall risk in older adults.
- Led the business development of SmartGait's flagship product, including collecting field data with device prototypes, conducting field interviews for customer discovery, developing *pro-forma* financial statements, writing proposals, and preparing pitch presentations for potential investors.

2016–2018 **Post-Doctoral Research Assistant**

Ziaie Biomedical Microdevices Laboratory (ZBML), Birck Nanotechnology Center, Purdue University

- Led the development of a scalable, commercializable dressing for integrated sensing and delivery of oxygen in chronic wounds (funded by NextFlex PC 1.0., under an AFRL cooperative agreement) in collaboration with Indiana University School of Medicine, Western Michigan University, and Integra LifeSciences Corporation.

- Developed low-cost micro-electro-fluidic platforms for lab-on-a-chip and organ-on-a-chip applications in breast cancer research in collaboration with the Lelièvre laboratory at Purdue. Developed a proof-of-concept demonstration of the commercial scalability of the platforms as part of a Trask Innovation Fund award.
  Advisor: Prof. Babak Ziaie

2009–2016 **Graduate Student Research Assistant**

Ziaie Biomedical Microdevices Laboratory (ZBML), Birck Nanotechnology Center, Purdue University

- Developed low-cost microsystem platforms for dermal wound monitoring and healing. This research is funded by the NSF as part of a multi-institution collaboration (Purdue, Tufts, Harvard Medical School, MIT, Brigham and Women's Hospital).
- Collaborated with and joined start-up Mednoxa, Inc. as a technical advisor once it licensed wound oxygenation IP from Purdue Research Foundation.
- Designed, fabricated, and characterized an all-titanium piezoelectrically actuated micropump for continuous transdermal delivery of liquid drugs (MS thesis).
- Contributed ideas, figures, and writing for 17 research proposals (e.g., NIH SBIR, U01, R21; NSF IDBS, ERC, STC; CTSI; DOD), including writing a full NSF proposal.
- Deployed online resources to centralize lab protocols, equipment guides, new user guides, research and writing tutorials, email lists, data collection and analysis software, and equipment and material management. Developed and maintained group website.
  Advisor: Prof. Babak Ziaie

2008–2009 **Undergraduate Researcher**

Caltech / Jet Propulsion Laboratory (JPL)

- Designed (in Verilog and VHDL), simulated, and implemented a hardware version of computation-intense algorithms for a visual odometry system.
  Advisors: Prof. Pietro Perona (Caltech) & Dr. Larry Matthies (JPL)

2007 & 2008 **Summer Intern**

Jet Propulsion Laboratory (JPL)

- Designed embedded system schematics and PCBs for a multi-channel, CPLD-controlled, microprocessor-equipped power isolation system for a rover testbed platform.
- Programmed a Cirris cable testing machine in C++ to streamline the testing of custom-designed cables against their schematics.
- Analyzed and documented a multi-module data acquisition system in Verilog.
  Supervisors: Elihu H. McMahon & Michael Thielman

Summer 2005 **Undergraduate Researcher**

Caltech Gray Group

Assisted Dr. Stephen Contakes with organic chemistry research in Prof. Harry B. Gray's group as part of Caltech's Freshmen Summer Institute.
Advisor: Dr. Stephen Contakes

TEACHING AND MENTORING EXPERIENCE

2013–2016 **Mathematics Instructor/Lecturer**

Purdue Department of Mathematics

Instructor for Applied Calculus I (Fall 2013, Fall 2014, Fall 2015) and Applied Calculus II [online] (Summer 2014). Experience with lecturing and writing exams.
Supervisor: Prof. Dominic Naughton

2011–Present **Mentoring**

Ziaie Biomedical Microdevices Laboratory (ZBML)

Designed and supervised appropriate research projects for 8 undegraduate researchers (e.g., summer reserachers). Guided the master's research of two graduate students. Mentored junior graduate students in academic and extra-curricular endeavors.

2013–2015 **Public Outreach**

Birck Nanotechnology Center, Purdue University

- Hosted interactive scientific research presentations (March 2013 & April 2014) for middle school students who visited Purdue; created and distributed educational pamphlets.
- Organized and ran an interactive "mock cleanroom" educational activity (April 2013, 2014, 2015) as part of Purdue's *NanoDays* 3-day event (open to the public) to elucidate key concepts in nanotechnology and microfabrication. Recruited and coordinated 28 volunteers in April 2015. Took on a consulting role and participant for the 2016–2018 events.

2010–2012 **Mathematics Recitation Teaching Assistant**

Purdue Department of Mathematics

Held recitation sessions once per week and wrote quizzes for Calculus I (Fall 2012), Calculus II (Fall 2010), Calculus III (Spring 2011), and Differential Equations and Linear Algebra (Fall 2011).
Supervisor: Prof. Rita Saerens

2008–2009 **Mathematics and Science Tutor**

ASOSAL, Los Angeles

Tutored K-12 students in mathematics and science as a volunteer tutor at the Association of Salvadorians (ASOSAL) enrichment center in Los Angeles, CA.

MICRO-FABRICATION SKILLS

Rapid prototyping

Soft lithography (e.g., for microfluidic and lab-on-a-chip applications) · CAD for 3D printing (for stereo-lithography and extrusion systems) · cutter-plotting · screen printing · process development using commercial films · Laser machining using CO_2 and fiber lasers (system super-user/trainer)

(Bio)MEMS Micromachining

Class 1-10-100 cleanroom and bio-cleanroom experience · wet etching · DRIE · photolithography · PECVD · surface profilometry · MEMS packaging · FE-SEM · Bio Safety Level II (BSL-II) certification · oxygen measurements · wireless device characterization

SOFTWARE EXPERIENCE

Operating Systems

Windows, macOS, Linux (Ubuntu)

Languages

Python, LaTeX, HTML/CSS, 80188 Assembly, Verilog, VHDL, C++, PHP

Graphic Design

Extensive experience designing technical illustrations that integrate 3D modeling (CAD), photography, 2D drawings, and graphs for scientific journals, book chapters, research proposals, conference posters, and for dissemination to the general public. I created artwork using primarily a combination of the following software packages.

Adobe Illustrator	CorelDRAW
Adobe Photoshop	Maxon Cinema 4D
Adobe Premier	SolidWorks (modeling)

Other software proficiency

Origin Pro	Mathworks MATLAB	Altium Designer
Microsoft Office	Wolfram Mathematica	Tanner L-Edit
Subversion/Mercurial	NeoFox Viewer	Xilinx ISE WebPack
Mendeley	Apache Server	ModelSim

PROFESSIONAL INVOLVEMENT

Societies

IEEE (EMBS & Education Society) · Member · 2009–Present

Mellon Mays Fellows Professional Network (MMFPN) · 2012–Present

BMES · Student Member · 2014–2016

AAAS · Member · 2014–Present

Mexican American Engineers & Scientists (MAES) · 2014–Present

Materials Research Society (MRS) · Student Member · 2012–2013

Committees

Purdue Nanomanufacturing Committee · Member · 2012–Present

Purdue Nanotechnology Student Advisory Council · Member (2011–2016) · Vice President (2013–2015); President (2012–2013) · Social Committee Chair (2011–2012)

Editorial

Reviewer for: IEEE TBME · IEEE IoT · Materials Research Society · BioCAS Conference · Sensors and Actuators: A · MDPI Micromachines

Other

Ziaie Group (ZBML) · Webmaster & Photographer · 2011–2016

Mendeley Ltd. Advisor · 2011–Present

ADDITIONAL INFORMATION

Spoken Languages

English and Spanish (Native speaker of both)

Other interests

Medical devices industry · Flexible hybrid electronics · Telemedicine and health analytics · Grand challenges · Entrepreneurship · Business development · Consumer electronics and gadgets · Science communication · Data visualization · Macrophotography & photomicroscopy · Science of cooking · Coffee

CAMPUS TALKS AND WORKSHOPS

"Laser-enabled technologies for low-cost, disposable wearable medical devices", in *1st Annual Conference on Micro & Nanoscale Science for Addressing Grand Challenges*, Purdue University, April **2016**.

"Laser Micromachining for Flexible Biomedical Microsystems", in *Nanotechnology Student Advisory Council Technical Workshop Series*, Purdue University, December **2015**.

JOURNAL PUBLICATIONS (26)

2018

C. K. Yoon, **M. Ochoa**, A. Kim, R. Rahimi, J. Zhou, B. Ziaie, "Yeast metabolic response as an indicator of radiation damage in biological tissue," *Advanced Biosystems*, **2018**, in press.

C. J. Compton, W. R. Nunery, J. A. Sokol, A. T. Melson, **M. Ochoa**, B. Ziaie, H. B. H. Lee, "Early Experience with Nonporous Polyethylene Barrier Sheet In Orbital Fracture Repair," *Ophthal Plast Reconstr Surg*, accepted.

P. Mostafalu, A. Tamayol, R. Rahimi, **M. Ochoa**, A. Khalilpour, G. Kiaee, I. K. Yazdi, S. Bagherifard, M. R. Dokmeci, B. Ziaie, S. R. Sonkusale, and A. Khademhosseini, "Smart Bandage for Monitoring and Treatment of Chronic Wounds," *Small*, vol. 14, **2018**, p. 1703509.

2017

S. Chittiboyina, R. Rahimi, F. Atrian, **M. Ochoa**, B. Ziaie, S. A. Lelièvre, "Gradient-on-a-Chip with Reactive Oxygen Species Reveals Thresholds in the Nucleus Response of Cancer Cells Depending on the Matrix Environment," *ACS Biomater Sci Eng*, **2017**, vol. 4, no. 2., pp. 432–445.

R. Rahimi, **M. Ochoa**, A. Tamayol, S. Khalili, A. Khademhosseini, B. Ziaie, "Highly Stretchable Potentiometric pH Sensor Fabricated via Laser Carbonization and Machining of Carbon-Polyaniline Composite," *ACS Appl Mater Inter*, vol. 9, no. 10, **2017**, pp. 9015–9023.

M. A. J. Zieger, **M. Ochoa**, R. Rahimi, G. Campana, S. Tholpady, B. Ziaie, R. Sood, "Skin Regeneration Using Dermal Substrates that Contain Autologous Cells and Silver Nanoparticles to Promote Antibacterial Activity: In Vitro Studies," *Military Medicine*, vol. 182, no. suppl_1, **2017**, pp. 376–382.

R. Rahimi, W. Yu, **M. Ochoa**, B. Ziaie, "Directly embroidered microtubes for fluid transport in wearable applications," *Lab Chip*, vol. 17, no. 9, **2017**, pp. 1585–1593.

M. Ochoa, C. K. Yoon, and B. Ziaie, "Laser-fabricated, self-forming swimmers with catalytic propulsion and magnetic navigation," *J Microelectromech S*, vol. 26, no. 4, **2017**, pp. 802–808.

2016

R. Rahimi, S. S. Htwe, **M. Ochoa**, A. Donaldson, M. Zieger, R. Sood, A. Tamayol, A. Khademhosseini, A. Ghaemmaghami, and B. Ziaie, "Paper-based in-vitro model for on-chip investigation of the human respiratory system," *Lab Chip*, vol. 16, no. 22, **2016**, pp. 4319–4325.

R. Rahimi, **M. Ochoa**, and B. Ziaie, "Direct laser writing of porous-carbon/silver nanocomposite for flexible electronics," *ACS Appl. Mater. Interfaces*, **2016**.

M. Ochoa, H. Jiang, J. H. Park, A. Otte, R. Pinal, and B. Ziaie, "Nanoparticle-enabled wireless monitoring and characterization of physical degradation kinetics in pharmaceutical gelatin films," *Sens. Actuators A: Phys.*, vol. 241, **2016**, pp. 238–244.

R. Rahimi, **M. Ochoa**, T. Parupudi, X. Zhao, I. K. Yazdi, M. R. Dokmeci, A. Tamayol, A. Khademhosseini, and B. Ziaie, "A low-cost flexible pH sensor array for wound assessment," *Sens. Actuators B: Chem.*, vol. 229, **2016**, pp. 609–617.

2015

W. Yu, R. Rahimi, **M. Ochoa**, R. Pinal, and B. Ziaie, "A smart capsule with GI-tract-location-specific payload release," *IEEE Trans. Biomed. Eng.*, vol. 62, no. 9, **2015**, pp. 2289–2295

R. Rahimi, **M. Ochoa**, A. Donaldson, T. Parupudi, M. R. Dokmeci, A. Khademhosseini, A. Ghaemmaghami, and B. Ziaie, "A Janus-paper PDMS platform for airliquid interface cell culture applications," *J. Micromech. Microeng.*, vol. 25, **2015**, 055015

R. Rahimi, **M. Ochoa**, W. Yu, and B. Ziaie, "Highly stretchable and sensitive unidirectional strain sensor via laser carbonization," *ACS Appl. Mater. Interfaces*, vol. 7, no. 8, **2015**, pp. 4463–4470

2014 R. Rahimi, **M. Ochoa**, W. Yu, and B. Ziaie, "A sewing-enabled stitch-and-transfer method for robust, ultra-stretchable, conductive interconnects," *J. Micromech. Microeng.*, vol. 24, **2014**, 095018

A. H. Najafabadi, A. Tamayol, N. Annabi, **M. Ochoa**, R. Rahimi, P. Mostafalu, M. Akbari, M. Nikkhah, M. R. Dokmeci, S. Sonkusale, B. Ziaie, A. Khademhosseini, "Biodegradable nanofibrous polymeric substrates for generating elastic and flexible electronics," *Adv. Mater.*, vol. 26, no. 33, pp. 5823–5830.

M. Ochoa, R. Rahimi, and B. Ziaie, "Flexible Sensors for Chronic Wound Management," *IEEE Rev. Biomed. Eng.*, vol. 7, **2014**, pp. 73–86.

P.-A. Vidi, T. Maleki, **M. Ochoa**, L. Wang, S. M. Clark, J. F. Leary, and S. A. Lelièvre, "Disease-on-a-Chip: Mimicry of Tumor Growth in Mammary Ducts," *Lab Chip*, vol. 14, no. 1., **2014**, pp.172–177.

M. Ochoa, R. Rahimi, Tiffany L. Huang, N. Alemdar, A. Khademhosseini, M. R. Dokmeci, and B. Ziaie, " A paper-based oxygen generating platform with spatially-defined catalytic regions for chronic wound treatment," *Sens. Actuators B: Chem*, vol. 198, **2014**, pp. 472–478.

2013 **M. Ochoa**, G. Chitnis, and B. Ziaie, "Laser-micromachined cellulose acetate adhesive tape as a low-cost smart material," *J. Polym. Sci. B Polym. Phys.*, vol. 51, no. 17, **2013**, pp. 1263–1267

M. Ochoa, P. Wei, A. J. Wolley, K. J. Otto, and B. Ziaie, "A hybrid PDMS-Parylene subdural multi-electrode array," *Biomed. Microdevices*, Jan. vol. 15, no. 3, **2013**, pp. 437–443

2012 **M. Ochoa**, C. Mousoulis, and B. Ziaie, "Polymeric microdevices for transdermal and subcutaneous drug delivery," *Adv. Drug Delivery Rev.*, vol. 64, no. 14, **2012**, pp. 1603–1616.

M. Ochoa and B. Ziaie, "A fermentation-powered thermopneumatic pump for biomedical applications," *Lab Chip*, vol. 12, no. 20, **2012**, pp. 4044–4048.

2011 **M. Ochoa** and B. Ziaie, "Analysis of novel methods to determine the accuracy of the OmniPod insulin pump: a key component of the artificial pancreas system.," *J. Diabetes Sci. Technol.*, vol. 5, no. 6, **2011**, pp. 1519–1520.

C. Mousoulis, **M. Ochoa**, D. Papageorgiou, and B. Ziaie, "A skin-contact-actuated micropump for transdermal drug delivery," *IEEE Trans. Biomed. Eng.*, vol. 58, **2011**, pp. 1492–1498.

CONFERENCE PUBLICATIONS (37)

2018 **M. Ochoa**, R. Rahimi, J. Zhou, H. Jiang, C.K. Yoon, M. Oscai, V. Jain, T. Morken, R.H. Oliveira, D. Maddipatla, B.B. Narakathu, G.L. Campana, M.A. Zieger, R. Sood, M.Z. Atashbar, B. Ziaie, "A manufacturable smart dressing with oxygen delivery and sensing capability for chronic wound management," in *SPIE 2018, Orlando, FL*, **2018**, vol. 10639, pp. 106391C.

2017 T. Zhang, **M. Ochoa**, R. Rahimi, B.Ziaie, "A wireless, smartphone-aided magnetic strain

sensor for biomedical applications," in *MEMS 2017, Las Vegas, NV*, **2017**, pp. 235238.

R. Rahimi, U. Brener, **M. Ochoa**, B. Ziaie, "Flexible and transparent pH monitoring system with NFC communication for wound monitoring applications," in *MEMS 2017, Las Vegas, NV*, **2017**, pp. 125128.

J. Zhou, **M. Ochoa**, S. Samaddar, R. Rahimi, V. D. Badwaik, D. H. Thompson, B. Ziaie, "A rapid micro-molding process for fabricating polymeric biodegradable 3D structures using hydrophobic elastomeric molds," in *MEMS 2017, Las Vegas, NV*, **2017**, pp. 422425.

2016

V. Jain, **M. Ochoa**, and B. Ziaie,"A low-cost, paper-based visual indicator patch for monitoring dehydration rate due to sweating," in *Proceedings of MicroTAS '16*, **2016**.

H. Jiang, R. Rahimi, **M. Ochoa**, T. Parupudi, and B. Ziaie,"A pH-regulated drug delivery device for targeting infected regions in chronic dermal wounds," in *Proceedings of MicroTAS '16*, **2016**.

W. Yu, J. Zhou, R. Rahimi, H. Jiang, **M. Ochoa**, and B. Ziaie,"Modular customizable 3d-printed batteries for wearable applications," in *Proceedings of MicroTAS '16*, **2016**.

L. Yang, C. Compton, **M. Ochoa**, B. Ziaie, J. Sokol, and M. Boyce, "Early Experience with Medpor Nonporous Barrier Sheet In Orbital Fracture Repair," in *Invest. Ophthalmol. Vis. Sci.*, vol. 57; ARVO E-Abstract 710

C. K. Yoon, **M. Ochoa**, A. Kim, R. Rahimi, and B. Ziaie, "An integrated low-cost radiation dosimeter utilizing microorganism as radiation-sensitive material," in *Hilton Head 2016: A Solid-State Sensors, Actuators and Microsystems Workshop*, **2016**.

R. Rahimi **M. Ochoa**, S. S. Htwe, A. Donaldson, M. Zieger, M. R. Dokmeci, A. Khademhosseini, R. Sood, A. Ghaemmaghami, and B. Ziaie, "A low-cost paper-based model for on-chip human respiratory system studies," in *Hilton Head 2016: A Solid-State Sensors, Actuators and Microsystems Workshop*, **2016**.

R. Rahimi , **M. Ochoa**, T. Parupudi, W. Yu, and B. Ziaie, "Facile fabrication of flexible electronics via direct laser writing of carbon-silver nanocomposite," in *Hilton Head 2016: A Solid-State Sensors, Actuators and Microsystems Workshop*, **2016**.

J. Zhou, R. Rahimi, A. Kim, **M. Ochoa**, and B. Ziaie, "A PVDF-based flexible and shapeable acoustic power source for implantable biomedical devices," in *Hilton Head 2016: A Solid-State Sensors, Actuators and Microsystems Workshop*, **2016**.

M. Ochoa, C. K. Yoon, and B. Ziaie, "Flexible self-forming swimmers with catalytic propulsion and magnetic navigation," in *MEMS 2016, Shanghai, China*, **2016**, pp. 11611164.

R. Rahimi, **M. Ochoa**, M. Zieger, R. Sood, and B. Ziaie, "A wireless strain sensor for wound monitoring with direct laser-defined patterning on a commercial dressing," in *MEMS 2016, Shanghai, China*, **2016**, pp. 481484.

J. Zhou, A. Kim, **M. Ochoa**, H. Jiang, and B. Ziaie, "An ultrasonically powered micropump for on-demand in-situ drug delivery," in *MEMS 2016, Shanghai, China*, **2016**, pp. 349352.

C. K. Yoon, A. Kim, **M. Ochoa**, T. Parupudi, and B. Ziaie, "A low-cost wearable radiation sensor based on dose response viability of yeast cells," in *MEMS 2016, Shanghai, China*, **2016**, pp. 10661069.

F. A. Afyani, C. Duffey, **M. Ochoa**, B. Ziaie, S.A. Lelièvre, "Nuclear morphology determines the response of cancer cells to anticancer drugs," in *Molecular Biology of the Cell*, vol. 27, **2016**

2015

M. Ochoa, J. Zhou, R. Rahimi, V. Badwaik, D. Thompson, and B. Ziaie, "Rapid 3D-print-and-shrink fabrication of biodegradable microneedles with complex geometries," in *Transducers 2015, Anchorage, AK*, **2015**.

H. Jiang, **M. Ochoa**, J.H. Park, A. Otte, R. Pinal, and B. Ziaie, "Wireless screenning of degradation kinetics in pharmaceutical gelatin films," in *Transducers 2015, Anchorage, AK*, **2015**.

R. Rahimi, **M. Ochoa**, W. Yu, and B. Ziaie, "A highly stretchable pH sensor array using elastomer-embedded laser carbonized patterns," in *Transducers 2015, Anchorage, AK*, **2015**.

R. Rahimi, **M. Ochoa**, W. Yu, and B. Ziaie, "A low-cost fabrication technique for direct sewing stretchable interconnetions for wearable electronics," in *Transducers 2015, Anchorage, AK*, **2015**.

L. Ben-Yehoshua, **M. Ochoa**, and B. Ziaie, "Rapid fabrication of 3D elastomeric structures via laser-machining and vacuum deformation," in *Transducers 2015, Anchorage, AK*, **2015**.

Z.B. Hughes, R. Rahimi, **M. Ochoa**, and B. Ziaie, "Rapid prototyping of piezoresistive mems sensors via a single-step laser carbonization and micromachining process," in *Transducers 2015, Anchorage, AK*, **2015**.

M. Ochoa, H. Jiang, R. Rahimi, and B. Ziaie, "Laser treated glass platform with rapid wicking-driven transport and particle separation capabilities," in *MEMS 2015, Estoril, Portugal*, **2015**.

R. Rahimi, **M. Ochoa**, W. Yu, and B. Ziaie, "A facile fabrication technique for stretchable interconnects and transducers via laser carbonization," in *MEMS 2015, Estoril, Portugal*, **2015**.

T.S. Zhang, A. Kim, **M. Ochoa**, and B. Ziaie, "Controllable 'somersault' magnetic soft robotics," in *MEMS 2015, Estoril, Portugal*, **2015**.

2014

M. Ochoa, R. Rahimi, H. Jiang, and B. Ziaie, "Laser surface-treated glass with wicking capability for microfluidics," in *µTAS 2015, San Antonio, TX*, **2015**.

R. Rahimi, **M. Ochoa**, J. Zhou, A. Tamayol, M.R. Dokmeci, A. Khademhosseini, A. Ghaemmaghami, and B. Ziaie, "A hybrid pdms/paper passive pump for slow-release/delivery of drugs in chronic dermal wounds," in *µTAS 2015, San Antonio, TX*, **2015**.

R. Rahimi, **M. Ochoa**, M. R. Dokmeci, A. Khademhosseini, and B. Ziaie, "A janus-paper pdms platform for lab-on-a-chip applications," in *Hilton Head 2014: A Solid-State Sensors, Actuators and Microsystems Workshop*, **2014**.

R. Rahimi, **M. Ochoa**, X. Zhao, M. R. Dokmeci, A. Khademhosseini, and B. Ziaie, "A flexible ph sensor array on paper using laser pattern definition and self-aligned laminated encapsulation," in *Hilton Head 2014: A Solid-State Sensors, Actuators and Microsystems Workshop*, **2014**.

R. Rahimi, **M. Ochoa**, W. Yu, and B. Ziaie, "A sewing-enabled stitch-and-transfer method for robust, ultra-stretchable, conductive interconnects," in *Hilton Head 2014: A Solid-State Sensors, Actuators and Microsystems Workshop*, **2014**.

2013 **M. Ochoa**, R. Rahimi, N. Alemdar, M. R. Dokmeci, A. Khademhosseini, and B. Ziaie, "A flexible, laser-defined, paper platform for localized oxygen generation and delivery, in *Proc. Transducers 2013*, Actuators and Microsystems, **2013**.

M. Ochoa, R. Rahimi, R. Shi, and B. Ziaie, "An impact sensing platform for spinal cord injury experiments," in *Proc. Sensors '13*, **2013**.

R. Rahimi, **M. Ochoa**, and B. Ziaie, "A low-cost flexible electrochemical sensor for monitoring silver ion concentration in alginate wound dressings," in *Proc. Sensors 13*, **2013**.

R. Rahimi, G. Chitnis, P. Mostafalu, **M. Ochoa**, S. Sonkusale, and B. Ziaie, "A low-cost oxygen sensor on paper for monitoring wound oxygenation," in *The 7th International Conference on Microtechnologies in Medicine and Biology*, **2013**.

2011 **M. Ochoa**, C. Mousoulis, and B. Ziaie, A sequential-dosage fluorocarbon-actuated micropump," in *Proceedings of MicroTAS '11*, **2011**, pp. 18071809.

2010 C. Mousoulis, **M. Ochoa**, and B. Ziaie,"A skin-contact-actuated dispenser/pump for transdermal drug delivery," in *Proceedings of MicroTAS '10*, **2010**, pp. 749751.

BOOK CHAPTERS

M. Ochoa, R. Rahimi, and B. Ziaie, "Laser-Enabled Fabrication Technologies for Low-Cost Flexible/Conformal Cutaneous Wound Interfaces," in *Stretchable Bioelectronics for Medical Devices and Systems*, J. A. Rogers, R. Ghaffari, and D.-H. Kim, Eds. Springer International Publishing, **2016**, pp. 207226.

INVENTIONS

B. Ziaie, **M. Ochoa**, and C. Mousoulis, "Touch-actuated micropump for transdermal drug delivery and method of use," US Patent 2012/0046644 A12012.

B. Ziaie, **M. Ochoa**, and R. Rahimi, "Platform for oxygen generation and delivery," US Patent Application 14/602,203.

S. A. Lelievre, F. Atrian, S. Chittiboyina, **M. Ochoa**, R. Rahimi, B. Ziaie, "Open Gradient Exposure Platform for Cell Culture," US Patent Application.

B. Ziaie, **M. Ochoa**, and V. Jain, "Skin-mounted sweat sensor," Provisional US Patent.

October 3, 2018