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| CONTACT INFORMATION | 695 N P St Livermore, CA 94551, USA | mobile: 760.464.9745 e-mail: christopher.phaneuf@gmail.com |
| RESEARCH INTERESTS | Bio-instrumentation, Microfluidics, Molecular diagnostics, Personalized medicine | |
| EMPLOYMENT | Sandia National Laboratories , Livermore, CA <i>Postdoctoral Appointee</i> | January 2015 – Present |
| EDUCATION | Georgia Institute of Technology , Atlanta, GA <i>PhD Bioengineering</i> | August 2008 – December 2014 |
| | The Cooper Union , New York, NY <i>BE Mechanical Engineering</i> Magna Cum Laude | September 2004 – May 2008 |
| HONORS AND AWARDS | American Society for Precision Engineering (ASPE) Annual Meeting Scholarship: 2010 Department of Homeland Security Graduate Fellowship: 2009 NSF Graduate Fellowship Honorable Mention: 2009 Nicholas M. Stefano Prize in Mechanical Engineering: 2008 Society of American Military Engineers (SAME) Scholarship: 2007 Federal SMART Grant: 2006-2007, 2007-2008 Cooper Union Dean's List: 01/05, 01/07, 05/07, 01/08, 05/08 Engineering with Vision Scholar: 2005-2006 Edward J. Barlow Scholar: 2005-2006 | |
| PUBLICATIONS | Ouyang, Y., Li, J., Phaneuf, C. R., Riehl, P. S., Forest, C. R., Begley, M., Haverstick, D. M., Landers, J. P., Multilevel fluidic flow control in a rotationally-driven polyester film microdevice created using laser print, cut and laminate, <i>Lab on a chip</i> . 2016,16:377–387. | |
| | Phaneuf, C. R., Pak, N., Saunders, D. C., Holst, G. L., Birjiniuk, J., Nagpal, N., Culpepper, S., Popler, E., Shane, A. L., Jerris, R. C., Forest, C. R., Thermally multiplexed polymerase chain reaction, <i>Biomicrofluidics</i> . 2015, 9:044117. | |
| | Saunders, D. C., Holst, G. L., Phaneuf, C. R., Pak, N., Marchese, M., Sondej, N., McKinnon, M., Forest, C. R., Rapid, quantitative, reverse transcription PCR in a polymer microfluidic chip, <i>Biosensors and Bioelectronics</i> . 2013, 44:222–228. | |
| | Phaneuf, C. R., Oh, K., Pak, N., Saunders, D. C., Conrardy, C., Landers, J. P., Tong, S., Forest, C. R., Sensitive, microliter PCR with consensus degenerate primers for Epstein Barr virus amplification, <i>Biomedical Microdevices</i> . 2012, 14:1–11. | |
| | Pak, N., Saunders, D. C., Phaneuf, C. R., Forest, C. R., Plug-and-play infrared laser-mediated PCR in a microfluidic chip. <i>Biomedical Microdevices</i> . 2012, 14:427–433. | |
| | Phaneuf, C. R., Pak, N., Forest, C. R., Modeling radiative heating of liquids in microchip reaction chambers, <i>Sensors & Actuators: A. Physical</i> . 2011, 167:531–536. | |
| PRESENTATIONS | Holst, G. L., Go, J., Fan, A., Lu, C., Kodandaramaiah, S., Phaneuf, C. R., Stoy, W., Kolb, I., Wickersham, I., Boyden, E.S., Forest, C. R., Pipette replacement robot to fully automate sequential patch clamp recordings in-vivo, <i>Proceedings of the Annual Meeting of the Society for Neuroscience (Neuroscience 2013)</i> , San Diego, CA, November 9–13, 2013. | |
| | Holst, G. L., Kodandaramaiah, S., Phaneuf, C. R., Stoy, W., Kolb, I., Wickersham, I., Killian, N., Buffalo, E., Boyden, E. S., Rorest, C. R., Miniaturized actuation system for automated, in-vivo, patch clamp recording, <i>Proceedings of the Annual Meeting of the Society for Neuroscience (Neuroscience 2013)</i> , San Diego, CA, November 9–13, 2013. | |

Phaneuf, C. R., Pak, N., Saunders, D. C., Poplar, E., Nagpal, N., Jerris, R., Shane, A., Forest, C. R., Thermally-multiplexed microfluidic PCR, *Proceedings of the 16th International Conference on Miniaturized Systems for Chemistry and Life Sciences (μ TAS)*, Freiburg-Black Forest, Germany, October 27–31, 2013.

Ouyang, Y., Li, J., Phaneuf, C. R., Wang, S., Riehl, P. S., Landers, J. P., Developing of a Disposable Microfluidic Platform for Serial Dilution in Point-of-Care Testing, *Proceedings of the 16th International Conference on Miniaturized Systems for Chemistry and Life Sciences (μ TAS)*, Okinawa, Japan, October 28–November 1, 2012.

Phaneuf, C. R., Oh, K., Pak, N., Saunders, D. C., Conrardy, C., Landers, J. P., Tong, S., Forest, C. R., Sensitive, Microliter PCR with Degenerate Primers for Respiratory Virus Detection and Discovery, *Proceedings of the Biomedical Engineering Society (BMES) 2012 Annual Meeting*, Atlanta, GA, October 24–27, 2012.

Pak, N., Phaneuf, C. R., Saunders, D. C., Forest, C. R., Simultaneous Amplification of Multiple DNA Targets with Optimized Annealing Temperatures, *Proceedings of the Biomedical Engineering Society (BMES) 2012 Annual Meeting*, Atlanta, GA, October 24–27, 2012.

Holst, G. L., Saunders, D. C., Phaneuf, C. R., Pak, N., Forest, C. R., Sensitive, Open-loop, rapid, laser PCR system using transient thermal analysis, optimization, and environmental control, *Proceedings of the Biomedical Engineering Society (BMES) 2012 Annual Meeting*, Atlanta, GA, October 24–27, 2012.

Pak, N., Holst, G. L., Phaneuf, C. R., Saunders, D. C., Forest, C. R., Control Schemes for Microfluidic Viral DNA/RNA Amplification, oral presentation, *Proceedings of the 27th Annual Meeting of the American Society for Precision Engineering (ASPE)*, San Diego, CA, October 21–26, 2012.

Phaneuf, C. R., Pak, N., Saunders, D. C., Forest, C. R., Modeling and Design of a Microscale Multiplexed Temperature Control System, poster presentation, *Proceedings of the 26th Annual Meeting of the American Society for Precision Engineering (ASPE)*, Denver, CO, November 13–18, 2011.

Phaneuf, C. R., Pak, N., Saunders, D. C., Forest, C. R., Rapid, Independently Controlled Polymerase Chain Reaction via Multiplexed Laser Radiation, poster presentation, *The 15th International Conference on Miniaturized Systems for Chemistry and Life Sciences (μ TAS)*, Seattle, WA, October 2–6, 2011.

Phaneuf, C. R., Forest, C. R., Direct, High-Speed Milling of Polymer Microchamber Arrays, poster presentation, *Proceedings of the 25th Annual Meeting of the American Society for Precision Engineering (ASPE)*, Atlanta, GA, October 31–November 4, 2010.

Pak, N., Phaneuf, C. R., Kodandaramaiah, S. B., Forest, C. R., Modulation of electromagnetic radiation using a dot matrix printer, poster presentation, *Proceedings of the 25th Annual Meeting of the American Society for Precision Engineering (ASPE)*, 50:258–260, Atlanta, GA, October 31–November 4, 2010.

Phaneuf, C. R., Pak, N., Forest, C. R., Rapid, Low-Cost, Microfluidic Thermocycler for High-Throughput Genetic Diagnostics, oral presentation, *Proceedings of the ASME 2010 Summer Bioengineering Conference*, Naples, FL, June 15–19, 2010.

Phaneuf, C. R., Leslie, D. C., Landers, J. P., Forest, C. R., Modeling and Experimental Validation of Dual Microfluidic Chamber, Infrared Laser-Mediated Polymerase Chain Reaction, poster presentation, *23rd International Symposium on MicroScale BioSeparations (MSB)*, Boston, MA, February 1–5, 2009.

SYMPOSIA

Phaneuf, C. R., Light, Y. K., Tran, H. M., Singh, A. K., Koh, C. Y., Non-contact heating system for a centrifugal microfluidic platform, *SELECTBIO Lab-on-a-Chip, Microfluidics & Microarrays World Congress*, San Diego, CA September 28–30, 2015.

C. R. Forest, C. M. Henegar, J. P. Bardill, C. R. Phaneuf, G. L. Holst, B. K. Hammer, Empirical measurement of molecular communication between bacteria on a microfluidic chip, *1st International Summer School on Nanocommunications*, Tampere University of Technology, Tampere, Finland, May 21–23, 2013.

Pak, N., Holst, G. L., Phaneuf, C. R., Saunders, D. C., Forest, C. R., Control schemes for microfluidic viral DNA/RNA amplification, *Southern Section of Association of Official Agricultural Chemists (AOAC) International Meeting*, Atlanta, GA, April 29–May 1, 2012.

Phaneuf, C. R., Forest, C. R., Rapid, microfluidic viral screening using Consensus-Degenerate Hybrid Oligonucleotide Primer PCR, *Georgia Tech Research and Innovation Conference (gtRIC) 2012*, Atlanta, GA, February 7, 2012.

Phaneuf, C. R., Pak, N., Forest, C. R., An Instrument for Multi-Temperature, Multi-Chamber, and Micro-Liter Amplification of RNA/DNA, *Proceedings of the Workshop on Novel Sampling and Sensing for Improving Food Safety*, Atlanta, GA, June 16–17, 2011, p. 79-80.

Phaneuf, C. R., Abhyankar, V., Hatch, A., Capturing bead-based mimic of circulating tumor cells using photopolymerized post array, poster presentation, *Sandia Intern Symposium 2010*, Sandia National Laboratories, Livermore, CA, August 5, 2010.

Phaneuf, C. R., Pak, N., Forest, C. R., Arrayed, independently-controlled PCR thermocycling in a polymeric microchip, poster presentation, *Georgia Tech Research and Innovation Conference (gtRIC) 2010*, Atlanta, GA, February 8, 2010.

ACADEMIC
EXPERIENCE

Georgia Institute of Technology, Atlanta, GA

Graduate Research Fellow

August 2008 – December 2014

Advisor: Prof. Craig R. Forest

Developing instrumentation for rapid, high-throughput molecular diagnostics

Sandia National Laboratories, Livermore, CA

DHS Intern

June 2010 – August 2010

Advisor: Dr. Vinay Abhyankar

Fabricated and tested photopolymerized microfluidic devices for cancer diagnostics

University of Virginia, Charlottesville, VA

Visiting Scholar

May 2009 – August 2009

Advisor: Prof. James P. Landers

Designed polymeric microfluidic devices for low-volume genetic analysis and performed electrophoretic separation and detection of DNA samples

The Cooper Union, New York, NY

Undergraduate Researcher

September 2007 – May 2008

Advisor: Prof. David M. Wootton

Explored the pathogenesis of obstructive sleep apnea through virtual and physical modeling of airway collapse using dynamic system simulation in MATLAB and a custom-fabricated model of the human pharynx

University of Minnesota, Minneapolis, MN

NSF REU Research Intern

June 2007 – August 2007

Advisor: Prof. Perry Y. Li

Devised ways to combine a high-speed rotary valve and a permanent magnet synchronous motor and built an experimental prototype of a computer-controlled brushless motor

SKILLS

Computer Tools: C, BASIC, Arduino, L^AT_EX 2_ε, LabVIEW, Solidworks, HSMWorks, MasterCAM, AutoCAD, MATLAB, Simulink, Fluent, Adobe Photoshop & Illustrator, Excel, PC/Mac/Linux platform fluent

Math proficiency: Calculus, Linear Algebra, Differential Equations

Fabrication: Precision machining (manual and CNC), casting, basic electronics, laser cutting, 3D printing

Biology: PCR, primer design, nucleic acid extraction, slab gel electrophoresis, Agilent Bioanalyzer

Certified Engineer in Training (EIT)

MEMBERSHIPS

American Society for Precision Engineering (ASPE)

American Society of Mechanical Engineers (ASME)

Tau Beta Pi

Order of the Engineer