

Recent Publications (2017-present)

1. T. H. da Costa and J.-W. Choi, "An all elastomer pressure sensor utilizing printed carbon nanotube patterns with high sensitivity," *Micro and Nano Engineering*, vol. 14, 100113 (7pp), 2022.
2. C. A. Graham, H. Shamkhalichenar, V. E. Browning, V. J. Byrd, M. T. Gutierrez-Wing, Y. Liu, N. Novelo, J.-W. Choi, and T. R. Tiersch, "A practical evaluation of machine learning for classification of ultrasound images of ovarian development in channel catfish (*Ictalurus punctatus*)," *Aquaculture*, vol. 552, 738039 (12pp), 2022.
3. E. F. Austin, C. P. Kearney, P. J. Chacon, S. A. Wings, P. Acharya, and J.-W. Choi, "A fabricated force glove that measures hand forces during activities of daily living," *Sensors*, vol. 22, no. 4, 1330 (10pp), 2022.
4. J.-Y. Park, R. L. Pérez, C. E. Ayala, S. R. Vaughan, I. M. Warner, and J.-W. Choi, "A miniaturized quartz crystal microbalance measurement system based on a phase-locked loop circuit," *Electronics*, vol. 11, no. 3, 358 (13pp), 2022.
5. R. L. Pérez, C. E. Ayala, J.-Y. Park, J.-W. Choi, and I. M. Warner, "Quartz crystal microbalance detection methods of environmentally relevant volatile organic compounds," *Chemosensors*, vol. 9, no. 7, 153 (24pp), 2021.
6. P. J. Chacon, J.-Y. Park, A. M. Aly, G. Z. Voyiadjis, and J.-W. Choi, "A moving vehicle height monitoring sensor system for overheight impact avoidance," *Infrastructures*, vol. 6, no. 6, 91 (10pp), 2021.
7. H. Shamkhalichenar, T. R. Tiersch, and J.-W. Choi, "An impedimetric sensing probe based on printed circuit board technology for monitoring in cryobiology applications," *Journal of the Electrochemical Society*, vol. 168, no. 6, 067505 (9pp), 2021.
8. R. P. Tortorich, W. Morell, E. Reiner, W. Bouillon, and J.-W. Choi, "A study on the radiated susceptibility of printed circuit boards and the effects of via fencing," *Electronics*, vol. 10, no. 5, 539 (17pp), 2021.
9. Y.-H. Shin, M. T. Gutierrez-Wing, and J.-W. Choi, "Recent progress in portable fluorescence sensors," *Journal of the Electrochemical Society*, vol. 168, no. 1, 017504 (17pp), 2021.
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13. T. H. da Costa and J.-W. Choi, "Fabrication and patterning methods of flexible sensors using carbon nanomaterials on polymers," *Advanced Intelligent Systems*, vol. 2, 1900179 (14pp), 2020.
14. J.-Y. Park and J.-W. Choi, "Electronic circuit systems for piezoelectric resonance sensors," *Journal of the Electrochemical Society*, vol. 167, no. 3, 037560 (16pp), 2020.
15. T. H. da Costa and J.-W. Choi, "Low-cost and customizable inkjet printing for microelectrodes fabrication," *Micro Nano Systems Letters*, vol. 8, 2 (6pp), 2020.
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18. J.-Y. Park, L. Peng, and J.-W. Choi, "Critical heat flux limiting the effective cooling performance of two-phase cooling in an interlayer microchannel," *Microsystem Technologies*, vol. 25, no. 7, pp. 2831-2840, 2019.

19. H. Shamkhalichenar, J.-W. Choi, and T. R. Tiersch, "Three-dimensional printing can provide customizable probes for sensing and monitoring in cryobiology applications," *Cryobiology*, vol. 88, pp. 64-69, 2019.
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23. J. E. Beckham, F. Alam, V. Omojola, T. F. Scherr, A. M. Guitreau, A. Melvin, D. Park, J.-W. Choi, T. R. Tiersch, and W. T. Monroe, "A microfluidic device for motility and osmolarity analysis of zebrafish sperm," *Biomedical Microdevices*, vol. 20, no. 3, 67 (11pp), 2018.
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32. E. Song, T. H. da Costa, and J.-W. Choi, "A chemiresistive glucose sensor fabricated by inkjet printing," *Microsystem Technologies*, vol. 23, no. 8, pp. 3505-3511, 2017.

FULL LIST OF PUBLICATIONS

Journal Papers

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175. E. F. Austin, S. Winges, C. P. Kearney, P. J. Chacon, P. Acharya, and J.-W. Choi, "Measuring finger forces in activities of daily living (ADLs) with a custom-made force glove," *2018 Biomedical Engineering Society Annual Meeting (BMES 2018)*, Atlanta, GA, October 17-20, 2018.
176. H. Shamkhalichenar, T. R. Tiersch, and J.-W. Choi, "An impedimetric sensor based on printed circuit board (PCB) for phase transition detection," *The 44th International Conference on Micro Nano Engineering (MNE 2018)*, Copenhagen, Denmark, September 24-27, 2018.
177. T. H. da Costa and J.-W. Choi, "Detection of underwater pressure vibrations with an elastomer-based sensor," *The 44th International Conference on Micro Nano Engineering (MNE 2018)*, Copenhagen, Denmark, September 24-27, 2018.
178. V. Campbell, S. Sathivel, and J.-W. Choi, "Polyaniline-based inkjet printed sensor for detection of biogenic amines in seafood," *Institute of Food Technologists Conference and Expo 2018 (IFT 2018)*, Chicago, IL, July 8-15, 2018.
179. H. Shamkhalichenar and J.-W. Choi, "An inkjet-printed electrochemical sensor on paper for lead and cadmium detection," *The 10th International Symposium on Microchemistry and Microsystems (ISMM 2018)*, Busan, Korea, June 19-21, 2018.
180. Y.-H. Shin, M. T. Gutierrez-Wing, and J.-W. Choi, "A portable fluorescent sensor system for harmful algal bloom detection," *The 10th International Symposium on Microchemistry and Microsystems (ISMM 2018)*, Busan, Korea, June 19-21, 2018.
181. M. T. Gutierrez-Wing, J.-W. Choi, C. D. Lofton, and P. J. Chacon, "A novel lighting device for microalgal cultures," *The 11th Annual Algae Biomass Summit 2017*, Salt Lake City, UT, October 29 - November 1, 2017.
182. E. F. Austin, C. P. Kearney, M. A. St Pierre, K. Khattab, Y.-H. Shin, and J.-W. Choi, "Movement of a paralyzed hand with elastomeric orthotics," *2017 Biomedical Engineering Society Annual Meeting (BMES 2017)*, Phoenix, AZ, October 11-14, 2017.
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184. A. Parodi and J.-W. Choi, "Neurostimulator signal generator with tunable waveforms," *2017 Biomedical Engineering Society Annual Meeting (BMES 2017)*, Phoenix, AZ, October 11-14, 2017.
185. T. H. da Costa and J.-W. Choi, "An all elastomer pressure sensor utilizing printed carbon nanotube patterns," *The 43rd International Conference on Micro Nano Engineering (MNE 2017)*, Braga, Portugal, September 18-22, 2017.
186. H. Shamkhalichenar, Y. Liu, T. R. Tiersch, and J.-W. Choi, "A 3-D printed impedimetric sensor for phase transition detection during freezing and thawing of biological fluids," *The 43rd International Conference on Micro Nano Engineering (MNE 2017)*, Braga, Portugal, September 18-22, 2017.
187. Y.-H. Shin and J.-W. Choi, "An LED-based portable multi-excitation fluorometer," *The 231st Electrochemical Society Meeting*, New Orleans, LA, May 28 – June 1, 2017.
188. T. H. da Costa and J.-W. Choi, "A printed capacitor with carbon nanotube electrodes for energy storage," *The 231st Electrochemical Society Meeting*, New Orleans, LA, May 28 – June 1, 2017.
189. H. Shamkhalichenar and J.-W. Choi, "A fully inkjet-printed sensor for electrochemical detection of heavy metals," *The 231st Electrochemical Society Meeting*, New Orleans, LA, May 28 – June 1, 2017.
190. T. Ghomian, S. Farimand, and J.-W. Choi, "A photovoltaic device based on PbS quantum dots," *The 231st Electrochemical Society Meeting*, New Orleans, LA, May 28 – June 1, 2017.
191. M. T. Gutierrez-Wing, J. Z. Barnett, Y.-H. Shin, J.-W. Choi, R. Malone, and K. A. Rusch, "Effect of Irradiance and light wavelength on a mixed microalgal/cyanobacterial culture," *Aquaculture America 2017*, San Antonio, TX, February 19-22, 2017.
192. E. F. Austin, P. J. Chacon, Y.-H. Shin, M. A. St Pierre, and J.-W. Choi, "A wrist and hand exoskeleton orthosis controlled by EMG sensors," *2016 Biomedical Engineering Society Annual Meeting (BMES 2016)*, Minneapolis, MN, October 5-8, 2016.
193. H. Shamkhalichenar and J.-W. Choi, "An inkjet-printed hydrogen peroxide sensor on paper," *The 230th Electrochemical Society Meeting*, Honolulu, HI, October 2-7, 2016.
194. T. Ghomian and J.-W. Choi, "A photodetector based on a conjugated polymer and PbS colloidal quantum dots," *The 230th Electrochemical Society Meeting*, Honolulu, HI, October 2-7, 2016.
195. Y.-H. Shin, J. Z. Barnett, M. T. Gutierrez-Wing, K. A. Rusch, and J.-W. Choi, "A portable fluorescent sensing system with multicolor excitation LEDs," *The 42nd International Conference on Micro and Nano Engineering (MNE 2016)*, Vienna, Austria, September 19-23, 2016.
196. H. Shamkhalichenar and J.-W. Choi, "An inkjet-printed electrochemical sensor for selective detection of hydrogen peroxide," *The 42nd International Conference on Micro and Nano Engineering (MNE 2016)*, Vienna, Austria, September 19-23, 2016.
197. T. H. da Costa and J.-W. Choi, "A flexible two dimensional force sensor using PDMS nanocomposite," *The 42nd International Conference on Micro and Nano Engineering (MNE 2016)*, Vienna, Austria, September 19-23, 2016.
198. T. Ghomian, S. Farimand, and J.-W. Choi, "An infrared photodetector using PbS quantum dots capped with isopropylamine," *The 42nd International Conference on Micro and Nano Engineering (MNE 2016)*, Vienna, Austria, September 19-23, 2016.
199. P. J. Chacon, Y.-H. Shin, T. Ghomian, H. Shamkhalichenar, T. H. da Costa, and J.-W. Choi, "Wearable reflectance-type pulse oximeter design with wireless communication capability for blood oxygenation monitoring," *The 38th Annual International Conference of the IEEE Engineering in Medicine and Biology Society (IEEE EMBC 2016)*, Orlando, FL, August 16-20, 2016.
200. Y.-H. Shin, J. Z. Barnett, M. T. Gutierrez-Wing, K. A. Rusch, and J.-W. Choi, "An LED-based portable fluorescent sensing platform," *US-Korean Conference on Science, Technology, and Entrepreneurship 2016 (UKC 2016)*, Dallas, TX, August 10-13, 2016.

201. T. H. da Costa and J.-W. Choi, "A flexible two dimensional force sensor using PDMS nanocomposite," *US-Korean Conference on Science, Technology, and Entrepreneurship 2016 (UKC 2016)*, Dallas, TX, August 10-13, 2016.
202. **(Invited)** J.-W. Choi, "Low cost lab-on-a-chip and biosensors for on-site detection," *The 4th Hellenic Forum for Science, Technology and Innovation*, Athens, Greece, July 11-15, 2016.
203. H. Shamkhalichenar and J.-W. Choi, "A paper-based electrochemical sensor array for detection of hydrogen peroxide," *The 229th Electrochemical Society Meeting*, San Diego, CA, May 29 – June 2, 2016.
204. Y.-H. Shin, J. Z. Barnett, M. T. Gutierrez-Wing, K. A. Rusch, and J.-W. Choi, "An LED-based fluorescent sensing system for on-site microalgal detection," *The 229th Electrochemical Society Meeting*, San Diego, CA, May 29 – June 2, 2016.
205. A. Parodi, L. C. Boswell, and J.-W. Choi, "A Primitive neurostimulator demonstrated with frog sciatic nerve and gastrocnemius muscle," *2015 Biomedical Engineering Society Annual Meeting (BMES 2015)*, Tampa, FL, October 7-10, 2015.
206. J. Z. Barnett, Y.-H. Shin, K. A. Rusch, J.-W. Choi, and M. T. Gutierrez-Wing, "Effects of light quality on the biomass, pigment and lipid productivity of a *Chlorella vulgaris*/*Leptolyngbya* sp. co-culture," *2015 Algae Biomass Summit*, Washington, DC, September 29 – October 2, 2015.
207. T. H. da Costa and J.-W. Choi, "A dopamine sensor on paper with printed carbon nanotube electrodes," *The 41st International Conference on Micro and Nano Engineering (MNE 2015)*, The Hague, Netherlands, September 21-24, 2015.
208. A. Parodi and J.-W. Choi, "Characterization of a capacitor-based neurostimulator with a flexible waveform design," *The 37th Annual International Conference of the IEEE Engineering in Medicine and Biology Society (IEEE EMBC 2015)*, Milan, Italy, August 25-29, 2015.
209. **(Invited)** E. Song and J.-W. Choi, "Multi-analyte chemical detection using conducting polymers," *US-Korean Conference on Science, Technology, and Entrepreneurship 2015 (UKC 2015)*, Atlanta, GA, July 29 – August 1, 2015.
210. **(Invited)** E. Song and J.-W. Choi, "A chemiresistive glucose sensor based on polyaniline nanowire network," *The 227th Electrochemical Society Meeting*, Chicago, IL, May 24-28, 2015.
211. T. H. da Costa, R. P. Tortorich, E. Song, and J.-W. Choi, "A fully inkjet-printed carbon nanotube electrochemical sensor on paper," *The 227th Electrochemical Society Meeting*, Chicago, IL, May 24-28, 2015.
212. J. Z. Barnett, K. A. Rusch, J.-W. Choi, and M. T. Gutierrez-Wing, "Effects of light quality and light quantity on a Louisiana microalgae/cyanobacteria co-culture," *Aquaculture America 2015*, New Orleans, LA, Feb 19-22, 2015.
213. J.-W. Choi, "Flexible and printed nanotube and nanowire sensors," *2014 Nanotechnology for Defense Conference (NT4D 2014)*, Chantilly, VA, November 17-20, 2014.
214. M. T. Holley, E. Song, A. Moll, W. T. Monroe, D. J. Hayes, J.-W. Choi, and K. Park, "Measurement of cell traction force with a thin PDMS cantilever," *2014 Biomedical Engineering Society Annual Meeting (BMES 2014)*, San Antonio, TX, October 22-25, 2014.
215. E. F. Austin, Y.-H. Shin, W. Wang, and J.-W. Choi, "Design of a 3-D printed exoskeleton glove to passively move a paralyzed hand," *2014 Biomedical Engineering Society Annual Meeting (BMES 2014)*, San Antonio, TX, October 22-25, 2014.
216. A. Parodi and J.-W. Choi, "Implementation of primitive neural stimulator with simulated post-synaptic and action potentials," *2014 Biomedical Engineering Society Annual Meeting (BMES 2014)*, San Antonio, TX, October 22-25, 2014.
217. Y.-H. Shin, J. Z. Barnett, E. Song, M. T. Gutierrez-Wing, K. A. Rusch, and J.-W. Choi, "A handheld fluorescent sensor for on-site detection of microalage," *The 40th International Conference on Micro and Nano Engineering (MNE 2014)*, Lausanne, Switzerland, September 22-26, 2014.

218. E. Song and J.-W. Choi, "Selective multi-analyte detection using polyaniline nanowire-based chemiresistive sensors," *The 40th International Conference on Micro and Nano Engineering (MNE 2014)*, Lausanne, Switzerland, September 22-26, 2014.
219. E. Song, R. P. Tortorich, and J.-W. Choi, "Inkjet printed conducting polymer nanowires for flexible sensors," *The 40th International Conference on Micro and Nano Engineering (MNE 2014)*, Lausanne, Switzerland, September 22-26, 2014.
220. T. H. da Costa and J.-W. Choi, "A flexible force sensor using printed carbon nanotubes on PDMS by transfer patterning," *The 40th International Conference on Micro and Nano Engineering (MNE 2014)*, Lausanne, Switzerland, September 22-26, 2014.
221. J.-W. Choi, "Carbon nanotube composite patterns for flexible and ultrasensitive pressure sensing," *2013 Nanotechnology for Defense Conference (NT4D 2013)*, Tucson, AZ, November 4-7, 2013.
222. **(Invited)** R. P. Tortorich, E. Song, and J.-W. Choi, "Inkjet-printed carbon nanotube electrodes for electrochemical sensor applications," *The 224th Electrochemical Society Meeting*, San Francisco, CA, October 27 - November 1, 2013.
223. E. Song and J.-W. Choi, "A polyaniline nanowire network with catalytic nanoparticles for chemical sensing," *The 224th Electrochemical Society Meeting*, San Francisco, CA, October 27 - November 1, 2013.
224. J.-W. Choi and E. Song, "A self-calibrating polymer nanowire-based chemical sensor," *2012 Nanotechnology for Defense Conference (NT4D 2012)*, Summerlin, NV, August 6-9, 2012.
225. C.-X. Liu and J.-W. Choi, "Micropatterned elastomer nanocomposite for sensor applications," *2012 International Conference on Electronics, Information and Communication (ICEIC 2012)*, Jeongseon, Korea, February 1-3, 2012.
226. E. Song and J.-W. Choi, "pH responsive polyaniline nanowires and its sensitivity on electrochemical potentials," *2012 International Conference on Electronics, Information and Communication (ICEIC 2012)*, Jeongseon, Korea, February 1-3, 2012.
227. **(Invited)** J.-W. Choi, "Minimally instrumented point-of-care biochip," *Circuits and Systems for Medical and Environmental Applications (CaSME 2012)*, Merida, Yucatan, Mexico, January 9-10, 2012.
228. C.-X. Liu and J.-W. Choi, "Microfabrication of conductive polymer nanocomposite for novel sensor applications," *2011 Sigma Xi Annual Meeting and International Research Conference*, Raleigh, NC, November 10-13, 2011.
229. C.-X. Liu and J.-W. Choi, "Patterning of elastomer nanocomposite via laser ablation for sensor," *2010 Materials Research Society (MRS) Fall Meeting*, Boston, MA, November 29 - December 3, 2010.
230. J.-W. Choi, A. Abera, and F. Liu, "Minimally instrumented biological detection using carbon nanotubes and autonomous sample delivery," *2010 Chemical and Biological Defense Science and Technology (CBD S&T) Conference*, Orlando, FL, November 15-19, 2010.
231. J.-W. Choi and C.-X. Liu, "A polymer nanocomposite microstructure for strain and pressure sensing," in *Proceedings of Nanoelectronic Devices for Defense & Security Conference (Nano-DDS 2009)*, Fort Lauderdale, FL, September 28 - October 2, 2009.
232. J. Park and J.-W. Choi, "An electroactive polymer membrane for microactuation," *The 7th Louisiana Materials and Emerging Technologies Conference*, Baton Rouge, LA, October 23-24, 2006.
233. J.-W. Choi and N. S. Korivi, "A microscale glucose biofuel cell using reconstituted glucose oxidase on anode and activated palladium on cathode," *The 208th Electrochemical Society (ECS) Meeting*, Los Angeles, CA, October 16-21, 2005.
234. C. Gao, J.-W. Choi, and C. H. Ahn, "A novel glucose biosensor with gel-based solid electrolyte and microheater structure for rapid detection," *The 7th World Congress on Biosensors*, Kyoto, Japan, May 15-17, 2002.

235. C. H. Ahn, J.-W. Choi, S. Kim, Y.-S. Sohn, A. Puntambeker, S. Murugesan, G. Beaucage, and J. H. Nevin, "Disposable smart plastic biochips for clinical diagnostics," *BioMEMS Conference, Material Research Society (MRS)*, San Francisco, CA, April 1-3, 2002.
236. J.-W. Choi and C. H. Ahn, "A magnetic particle separator using permalloy microstructures and external electromagnets," *The 8th InterMag-MMM Joint Conference*, San Antonio, TX, January 7-11, 2001.
237. C. H. Ahn, H. T. Henderson, W. R. Heineman, H. B. Halsall, J. H. Nevin, A. J. Helmicki, and J.-W. Choi, "An integrated microfluidic biochemical detection system using magnetic beads," *IBC's Annual International Microtechnology Event: Chips to Hits 2000*, Philadelphia, PA, November 6-9, 2000.
238. C. A. Wijayawardhana, W. R. Heineman, H. B. Halsall, C. H. Ahn, T. Henderson, J. H. Nevin, T. Ridgway, C. Lannes, K. Schlueter, J.-W. Choi, S. Bhansali, "A fully automated electrochemical immunosensor system using microfabricated parts," *Biosensors 2000 (Sixth World Congress in Biosensors)*, San Diego, CA, May 24-26, 2000.
239. W. R. Heineman, C. A. Wijayawardhana, H. B. Halsall, M. Cousino, S. Purushothama, S. Kradtap, K. Schlueter, T. H. Ridgway, J.-W. Choi, S. Bhansali, C. H. Ahn, H. T. Henderson, C. Lannes, J. H. Nevin, "Immunoassay with magnetic beads and electrochemical detection," *Symposium on Electroorganic and Electroanalytical Aspects of Environmental Chemistry, Electrochemical Society Meeting*, Honolulu, HI, October 17-22, 1999.
240. W. R. Heineman, H. B. Halsall, T. H. Ridgway, M. Cousino, A. Wijayawardhana, S. Purushothama, S. Kradtap, J.-W. Choi, C. Lannes, J. Nevin, C. Ahn, T. Henderson, "Immunoassay with novel electrochemical detection methods," *The 218th American Chemical Society (ACS) Meeting*, New Orleans, LA, August 22-26, 1999.
241. W. R. Heineman, H. B. Halsall, M. Cousino, C. A. Wijayawardhana, S. Purushothama, S. Kradtap, K. Schlueter, J.-W. Choi, C. H. Ahn, and H. T. Henderson, "Electrochemical immunoassay with microfluidic systems," *PITTCON '99*, Orlando, FL, March 7-12, 1999.
242. W. R. Heineman, H. B. Halsall, M. Cousino, C. A. Wijayawardhana, S. Purushothama, Y. Ding, L. Zhou, J.-W. Choi, C. H. Ahn, H. T. Henderson, G. Wittstock, "Electrochemical immunosensors based on MEMS technology," *Immunochemistry Summit VII & Third Workshop on Biosensors & Biological Techniques in Environmental Analysis*, Las Vegas, NV, December 1-3, 1998.