

# SHUAI YANG

Phone: +966-567011667  
shuai.yang@kaust.edu.sa

IMPACT Lab, KAUST, Saudi Arabia

## PROFESSIONAL SKILLS

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- Experienced in additive manufacturing of electronics through inkjet printer, screen printer and super inkjet printer
- Design and optimization of RF electronics (schematic and layout level) in ADS or CST
- RF device measurement and characterization (probe station, Wincal)
- Experienced in nanofabrication processes: deposition (sputter, e-beam, PECVD), etching (wet etching and dry etching), mask alignment, laser writer, SEM, etc.
- Experienced in building neural network for modeling with Python and TensorFlow

## EDUCATION

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<b>PhD</b>	King Abdullah University of Science and Technology Major in Electrical Engineering (Microwaves and Additive Manufacturing) Thesis Title: “Additively Manufactured Vanadium Dioxide (VO <sub>2</sub> ) based Radio Frequency Switches and Reconfigurable Components” (Graduation in 2020 July) Advisor: Prof. Atif Shamim	2015-2020
<b>MS</b>	Hong Kong University of Science and Technology Major in IC Design Engineering	2012-2013
<b>BS</b>	Beijing University of Technology Major in Electrical Science and Technology	2007-2011

## RESEARCH EXPERIENCE

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VO <sub>2</sub> based RF switch and its applications in reconfigurable RF devices	2017-2020
<ul style="list-style-type: none"><li>• Creation of printing recipes and optimization of printing processes for inkjet printing and screen-printing of VO<sub>2</sub> ink</li><li>• Design, fabrication and characterization of fully printed VO<sub>2</sub> RF switches</li><li>• Design, fabrication and characterization of fully printed reconfigurable filters based on VO<sub>2</sub> switch</li><li>• Modelling of the printed RF switch based on artificial neural network (machine learning).</li></ul>	
Copper acetate-based low cost and fully printed humidity and hydrogen sulfide (H <sub>2</sub> S) gas sensor	2016-2017
Design and fabrication of fully printed Carbon nanotube (CNT) based transistor	2015-2016

## PUBLICATIONS

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### *Journal Papers*

- **S. Yang**, M. Vaseem, and A. Shamim, “Fully Inkjet-Printed VO<sub>2</sub>-Based Radio-Frequency Switches for Flexible Reconfigurable Components,” *Adv. Mater. Technol.*, vol. 4, no. 1, p. 1800276, 2019.
- **S. Yang**, W. Li., M. Vaseem, and A. Shamim, “Additively Manufactured Dual Mode Reconfigurable Filter Employing VO<sub>2</sub> Based Switches”, *IEEE Transactions on Components, Packaging and Manufacturing Technology*, accepted with minor revisions.

- **S. Yang**, A. Khusro, W. Li, M. Vaseem, M. Hashmi, and A. Shamim, “ANN based Modelling of Printed VO<sub>2</sub> RF switch for Reconfigurable RF applications”, *IEEE Transactions on Microwave Theory and Techniques*, submitted.
- W. Li, M. Vaseem, **S. Yang**, and Atif Shamim, “Flexible and Reconfigurable Radio Frequency Electronics Realized by High-Throughput Screen Printing of Vanadium Dioxide Switches”, *Nature Microsystems & Nanoengineering*, accepted.
- M. Vaseem, S. Zhen, **S. Yang**, W. Li, and A. Shamim, “Development of VO<sub>2</sub>-Nanoparticle-Based Metal–Insulator Transition Electronic Ink,” *Adv. Electron. Mater.*, vol. 5, no. 5, p. 1800949, 2019.
- W. Li, **S. Yang**, and A. Shamim, “Screen printing of silver nanowires: balancing conductivity with transparency while maintaining flexibility and stretchability,” *Nature (npj) Flexible Electronics*, vol. 3, no. 1, pp. 1–8, Jul. 2019.
- A. Quddious, **S. Yang**, M. M. Khan, F. A. Tahir, A. Shamim, K. N. Salama, H. M. Cheema, “Disposable, Paper-Based, Inkjet-Printed Humidity and H<sub>2</sub>S Gas Sensor for Passive Sensing Applications,” *Sensors*, vol. 16, no. 12, p. 2073, Dec. 2016.

#### **Conference Papers**

- S. Yang, W. Li, M. Vaseem, A. Shamim, “Fully Printed VO<sub>2</sub> Switch Based Flexible and Reconfigurable Filter”, in 2020 IEEE MTT-S International Microwave Symposium (IMS), 2020. (Accepted)
- S. Yang, A. Khusro, W. Li, M. Vaseem, M. Hashmi, A. Shamim, “A Machine Learning-Based Microwave Device Model for Fully Printed VO<sub>2</sub> RF Switches”, in 2020 50th European Microwave Conference (EuMC), 2020. (Accepted)
- F. A. Ghaffar, S. Yang, H. M. Cheema, and A. Shamim, “A 24 GHz CMOS oscillator transmitter with an inkjet printed on-chip antenna,” in 2016 IEEE MTT-S International Microwave Symposium (IMS), 2016, pp. 1–3.
- M. Vaseem, S. Zhen, S. Yang, and A. Shamim, “A Fully Printed Switch Based on VO<sub>2</sub> Ink for Reconfigurable RF Components,” in 2018 48th European Microwave Conference (EuMC), 2018, pp. 487–490.
- Z. Su, M. Vaseem, W. Li, S. Yang, and A. Shamim, “Additively Manufactured Frequency/Radiation Pattern Reconfigurable Antenna Based on Monolithically Printed VO<sub>2</sub> Switch,” in 2019 13th European Conference on Antennas and Propagation (EuCAP), 2019, pp. 1–4.
- M. Vaseem, Z. Su, S. Yang, and A. Shamim, “Flexibility Assessment of Fully Inkjet-Printed Reconfigurable Antenna with VO<sub>2</sub> Switch,” in 2018 IEEE Indian Conference on Antennas and Propagation (InCAP), 2018, pp. 1–2.
- S. Yang, S. Zhen, and A. Shamim, “Fully Inkjet Printed 85GHz Band Pass Filter on Flexible Substrate,” in 2018 48th European Microwave Conference (EuMC), 2018, pp. 652–654.
- M. Vaseem, Z. Su, S. Yang, and A. Shamim, “Fully Printed Flexible and Reconfigurable Antenna with Novel Phase Change VO<sub>2</sub> Ink Based Switch,” in 2018 International Flexible Electronics Technology Conference (IFETC), 2018, pp. 1–2.
- Z. Su, M. Vaseem, S. Yang, W. Li, K. Klionovski, and A. Shamim, “Fully Printed VO<sub>2</sub> Switch Based Reconfigurable PIFA / T-shaped Monopole Antenna,” in 2018 18th International Symposium on Antenna Technology and Applied Electromagnetics (ANTEM), 2018, pp. 1–2.
- Z. Su, M. Vaseem, S. Yang, K. Klionovski, and A. Shamim, “Fully Printed VO<sub>2</sub> Switch Based Reconfigurable PIFA Antenna,” in 2018 IEEE International Symposium on Antennas and Propagation USNC/URSI National Radio Science Meeting, 2018, pp. 1683–1684.