Computer Science

# Ziyi Liu

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## EDUCATION

**M.Sc. Electrical and Computer Engineering** Sept. 2020 – Oct. 2022
University of Calgary (Calgary, Alberta, Canada)
**GPA:** 3.85/4.0• **GRE:** 167/170 quant., 156/170 verbal

**B.S. Computer Science** Sept. 2016 - July 2020
Zhejiang University of Technology (Hangzhou, Zhejiang, China)
Main courses: C/C++, Java, JavaEE, Operation System, SQL Server, Data Structure, Principles of Computer Composition, Principles of Computer Network
**GPA:** 3.72/5.0

## RESEARCH AND PROFESSIONAL EXPERIENCE

**Research Assistant**
CLVR lab, University of Southern California Nov. 2022 - Present

**Research Assistant** Sept. 2020 - Oct. 2022
I2Sense lab, University of Calgary

**Main Projects:**
LightFuse: Lightweight CNN based Dual-exposure Fusion
- To propose a **lightweight** model for extreme dual-exposure image fusion
- To deploy model on various embedded computing platforms with limited power and hardware resources, such as **Raspberry Pi** and **FPGA**.

Female Entrepreneurs Success Prediction with Deep Neural Network in Commercialization Education
- To predict STEM women's success based on our collected questionnaire surveys using five machine learning methods.
- To apply Variational Autoencoder (VAE) to augment tabular data for enhancing prediction results.

**Undergraduate Researcher** Apr. 2019 - Apr. 2020
I2Sense lab, University of Calgary

**Main Projects:**
WDR FACE: The First Database For Studying Face Detection In Wide Dynamic Range
- Responsible for the **establishment**, preprocessing, and analysis of the high dynamic range (HDR) face **database**.
- Responsible for the **classification of faces**, transferring the image from high dynamic range to low dynamic range (tone-mapping), and establishing face coordinates.

Deep Reformulated Laplacian Tone Mapping
- Proposed a reformulated Laplacian neural network to pursue more stable and smoother results.
- Responsible for writing TensorFlow code to examine the proposed idea.

## PUBLICATIONS

Zhang J, Zhang J, Pertsch K, Liu Z, Ren X, Chang M, Sun SH, Lim JJ. Bootstrap Your Own Skills: Learning to Solve New Tasks with Large Language Model Guidance. In7th Annual Conference on Robot Learning 2023 Aug 30.

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## PREPRINTS

Yang, J., **Liu, Z**., Lin, M., Yanushkevich, S. and Yadid-Pecht, O., 2021. Deep reformulated Laplacian tone mapping. arXiv preprint arXiv:2102.00348.

**Liu, Z.**, Yang, J., Yanushkevich, S. and Yadid-Pecht, O., 2021. LightFuse: Lightweight CNN based Dual-exposure Fusion. arXiv preprint arXiv:2107.02299.

**Liu, Z.**, Yang, J., Lin, M., Lai, K.K.F., Yanushkevich, S. and Yadid-Pecht, O., 2021. WDR FACE: The First Database for Studying Face Detection in Wide Dynamic Range. arXiv preprint arXiv:2101.03826.

Yang, J., Lin, M., **Liu, Z**., Shahnovich, U. and Yadid-Pecht, O., 2021. Mobile-end Tone Mapping based on Integral Image and Integral Histogram. arXiv preprint arXiv:2102.01289.

Yang, J., **Liu, Z.**, Shahnovich, U. and Yadid-Pecht, O., 2021. Tone Mapping Based on Multi-scale Histogram Synthesis. arXiv preprint arXiv:2102.00408.

## HONORS AND AWARDS

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|---|---|
| International Graduate Tuition Award | Oct. 2021 |
| Graduate fellowship | Sep. 2020 |
| Third Prize of **Coding Competition** of Zhejiang University of Technology | Mar. 2018 |
| Zhejiang **Provincial Government** Scholarship (top 20%) | Nov. 2017 |
| The Third Prize of the 27th Professional Academic Competition | Mar. 2017 |

## COMPUTER SKILLS

**Programming Languages:** Python, C/C++, Java, JavaScript, SQL, TensorFlow, Keras, PyTorch, MATLAB, C#

**SDKs & Tools:** PyCharm, Eclipse, Visual Studio, OpenCV, Git, MVC, Linux Shell, .Net, Vivado

## LEADERSHIP & ACTIVITIES

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|---|---|
| Student Volunteer, **CoRL 2023** | Nov. 2023 |
| Operator, From Lab 2 Fulfillment (fl2f.ca) | Sep. 2020-Oct. 2022 |
| Volunteer, Women in Science and Engineering (uofcwise.com) | Sep.2019 |
| Volunteer, Go Eng Girl (women-engineering) | May.2019 |
| Team Leader, ACM China Collegiate Programming Contest | Oct. 2018 |

## SELECTED PROJECTS

**Biometric Recognition of Emotional States on ECG WESAD Dataset** Jan. 2021 - Apr. 2021

- Contribution: classify four emotional states based on ECG data
- Learned skills: recurrent neural networks, regression models, preprocess and analyze time-series data.

**Deep GAN Multi-Exposure Images Fusion for Large Foreground Motions** Oct. 2019 - Apr. 2020

- Contribution: eliminate ghosting artifacts in image fusion caused by large foreground motions.
- Learned skills: generative adversarial network, attention mechanism, image processing.