Junekey Jeon

Education

2019– Ph.D. student in University of California San Diego (UCSD) (ongoing).
- Major: mathematics (partial differential equations)
- Advisor: Andrej Zlatoš

2013–2015 **M.Sc.**, Korea Advanced Institute of Science and Technology (KAIST)
- Major: electrical engineering (information theory)
- Advisor: Sae-Young Chung

2009–2013 **B.Sc.**, Korea Advanced Institute of Science and Technology (KAIST)
- Major: electrical engineering
- Major: mathematics

Employment

2017–2018 **Researcher**, KAIST KI-ITC Augmented Reality Research Center
- Project title: *Research on Context-of-Interest (CoI) driven 4D+ Multi-Space Convergence for Realistic Hand-Augmented Object Interaction through HMD*
  - Real-time nonrigid 3D surface mesh reconstruction from RGB-D cameras
- Project title: *Development of 3D 360 degree VR Contents Creation Technology using Multi-View Camera*
  - Color histogram matching algorithm

2015–2017 **Researcher**, Electronics and Telecommunications Research Institute (ETRI)
- Project title: *Development of Smart Space to Promote the Immersive Screen Media Service*
  - IMU-vision-based attitude filtering algorithm
  - 3D surface mesh reconstruction from RGB-D cameras
- Project title: *Development of Programmable Interactive Media Creation Service Platform Based on Open Scenario*
  - Video shot segmentation algorithm

Publications

[1] Junekey Jeon and Andrej Zlatoš, *An improved regularity criterion and absence of splash-like singularities for g-SQG patches*, Analysis and PDE **17** (2024), no. 3, 1005–1018.

[2] Junekey Jeon and In-Jee Jeong, *On evolution of corner-like gSQG patches*, Journal of Mathematical Fluid Mechanics **25** (2023), no. 35.

[3] Jeong Woo Son, Junkey Jeon, Alex Lee, and Sun-Joong Kim, *Spectral clustering with brainstorming process for multi-view data*, 31st AAAI Conference on Artificial Intelligence, 2017, pp. 2548–2554.

[4] Junekey Jeon, Hwa-Suk Kim, Woo-Sug Jung, and Sun-Joong Kim, *A Bayesian sensor*

fusion scheme for attitude tracking, 2017 19th International Conference on Advanced Communication Technology (ICACT), IEEE, 2017, pp. 633–636.

[5] Junekey Jeon, *A generalized typicality for abstract alphabets*, 2014 International Symposium on Information Theory (ISIT), IEEE, 2014, pp. 2649–2653.

Teaching

2019– **Teaching assistant**, University of California San Diego (UCSD) (ongoing)

- **MATH 10B**: **Integral calculus** with Gweneth Anne McKinley (Fall 2022)
- **MATH 20D**: **Ordinary differential equations** with Vavalis Emmanuel (Fall 2020) and Roberts Justin Deritter (Spring 2021) and Ko Woon Ohm (Spring 2022 and Fall 2023)
- **MATH 20E**: **Vector calculus** with John Dietrich Eggers (Spring 2024) and Quang Tran Bach (Spring 2024)
- **MATH 110**: An undergraduate course on an introduction to **partial differential equations** with Jacob Sterbenz (Fall 2019)
- **MATH 130**: An undergraduate course on an introduction to **ordinary differential equations** from the **dynamical systems** perspective with Yuming Zhang (Winter 2021)
- **MATH 140B**: Second quarter of the three-quarter **advanced undergraduate real analysis** sequence with Bennett Chow (Winter 2020) and Andrej Zlatoš (Winter 2023)
- **MATH 140C**: Third quarter of the three-quarter **advanced undergraduate real analysis** sequence with Rayan Saab (Spring 2020) and Andrej Zlatoš (Spring 2023)
- **MATH 142A**: First quarter of the two-quarter **basic undergraduate real analysis** sequence with Mohammadi Amir (Fall 2021)
- **MATH 144**: An undergraduate course on a rigorous introduction to **Fourier series and Fourier transforms** with Ioan Bejenaru (Fall 2020 and Fall 2022)
- **MATH 148**: An undergraduate course on a rigorous introduction to **partial differential equations** with Andrej Zlatoš (Spring 2024)
- **MATH 240C**: Third quarter of the three-quarter **graduate real analysis** sequence with Lei Ni (Spring 2023)

Awards and scholarships

2013 Un Chong-Kwan scholarship.

- Annual award for the top two students entering master's degree program in the Department of Electrical Engineering at KAIST

2013–2014 Government-sponsored scholarship for graduate students.

2009–2012 National excellence scholarship (Natural Sciences and Engineering).

Open source contributions

Own projects

- **dragonbox**: Reference implementation of *Dragonbox*, a fast float-to-string conversion algorithm with roundtrip, shortness and correct rounding guarantees.
- **floff**: Reference implementation of *Floff*, a fast float-to-string conversion algorithm for user-given precision.
- **idiv**: Collection of generic algorithms and supporting utilities for Warren-Granlund-Montgomery style optimized integer divisions and other related problems.

Other contributions

- **{fmt}**: a famous C++ formatting library; implemented Dragonbox algorithm and a simple float-to-string conversion algorithm for small user-given precision
- **Boost.CharConv**: C++11-compatible implementation of C++17 <charconv>; assisted porting Dragonbox and Floff

Non-academic awards

2014 29th KAIST Music Festival Grand Prize