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, *Well-posedness and finite time singularity for touching g-SQG patches on the plane*, preprint.

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

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

[4] 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.

[5] 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.

[6] 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), Roberts Justin Deritter (Spring 2021), Ko Woon Ohm (Spring 2022, Fall 2023), Rishabh Dixit (Fall 2024), and Liam Hardiman (Fall 2024, Winter 2025, Summer 2025)
- **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, Winter 2025)
- **MATH 140C**: Third quarter of the three-quarter **advanced undergraduate real analysis** sequence with Rayan Saab (Spring 2020) and Andrej Zlatoš (Spring 2023, Spring 2025)
- **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, Fall 2022)
- **MATH 148**: An undergraduate course on a rigorous introduction to **partial differential equations** with Andrej Zlatoš (Winter 2024)
- **MATH 240C**: Third quarter of the three-quarter **graduate real analysis** sequence with Lei Ni (Spring 2023)

Open source contributions

Own projects

- **dragonbox**: Reference implementation of *Dragonbox*, a fast float-to-string conversion algorithm with roundtrip, shortness and correct rounding guarantees. Integrated into many popular projects (e.g. Google v8 and WebKit) as well as standard library implementations of several languages (e.g. Crystal, Factor, Mojo, Nim).
- **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

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).

Non-academic awards

2014 29th KAIST Music Festival Grand Prize