

🎓 EDUCATION

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|------------------------|--|
| Jan. 2021
Mar. 2017 | PhD, COMPUTER SCIENCE, ETH Zurich, Switzerland <ul style="list-style-type: none">> Thesis: <i>Data-Driven Methods for Artist-Directed Fluid Simulations</i>> Supervisors: Prof. Markus Gross, Prof. Barbara Solenthaler, Dr. Vinicius C. Azevedo |
| Dec. 2016
Sep. 2014 | MSc, COMPUTER SCIENCE (SPECIALIZATION TRACK IN VISUAL COMPUTING), ETH Zurich, Switzerland <ul style="list-style-type: none">> Thesis: <i>Learning Structured Representations for Geometry</i>> Supervisors: Prof. Markus Gross, Prof. Cengiz Öztireli |
| Aug. 2009
Mar. 2005 | BSc, COMPUTER SCIENCE, KAIST, Republic of Korea <ul style="list-style-type: none">> Thesis: <i>Implementation and Performance Improvement of EKF-SLAM and TJTF-SLAM with Logs of Sensor Data Set taken from Real Robots</i> (jointly authored with Haebom Lee)> Supervisor: Prof. Kee-Eung Kim> Thesis: <i>Fractal Analysis Method applied to the Analysis of EEG Time Series for a Distinction between Patients with Alzheimer-Type Dementia and Late Life Depression</i>> Supervisor: Prof. Jaeseong Jeong> Exchange student at Technical University of Munich (Apr. 2009 - Jul. 2009) |

📁 PROFESSIONAL EXPERIENCE

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| Since
Aug. 2022 | Senior Software Engineer, NVIDIA, Switzerland <ul style="list-style-type: none">> Developing Generative AI Technology for Omniverse |
| June. 2022
Aug. 2021 | Consultant, DISNEY RESEARCH STUDIOS, Switzerland <ul style="list-style-type: none">> Providing technical consulting services |
| June. 2022
Apr. 2021 | Postdoctoral Researcher, COMPUTER GRAPHICS LAB., ETH ZURICH, Switzerland <ul style="list-style-type: none">> Working on Neural Physics Simulations |
| Dec. 2020
Jan. 2020 | Joint PhD Student, DISNEY RESEARCH STUDIOS, Switzerland <ul style="list-style-type: none">> Developing neural network based fluid volume stylization tools for artists in collaboration with Walt Disney Animation Studio and Pixar, used in production for Disney's "Raya and the Last Dragon" |
| Sep. 2015
Jun. 2015 | Software Intern, NVIDIA, Switzerland <ul style="list-style-type: none">> Porting the NVIDIA PhysX SDK to the NVIDIA Tegra processor and the Nintendo Switch platform> Writing Code which runs as part of all videogames that employ PhysX simulation on the Nintendo Switch |
| Dec. 2014
Oct. 2014 | Research Assistant, COMPUTER GRAPHICS LAB., ETH ZURICH, Switzerland <ul style="list-style-type: none">> Developing an interactive 3D fluid simulator and renderer in a mobile environment |
| Mar. 2014
Sep. 2013 | Research Assistant, VISUAL SIMULATION LAB., DONGGUK UNIV., Republic of Korea <ul style="list-style-type: none">> Developing fast 3D rendering techniques for 2D fluid simulations in a mobile environment as an Academic-Industrial cooperation project with Samsung Electronics> Developing Maya & 3Ds Max plugins and tools for 🌐 a stand-alone VFX simulation software |
| Sep. 2014
May. 2013 | Co-Founder, TENELEVEN, Republic of Korea <ul style="list-style-type: none">> Founded 🌐 an AI-based construction tech startup> Maintaining a stakeholder position |
| May. 2013
Feb. 2010 | Research Engineer, FXGEAR, Republic of Korea <ul style="list-style-type: none">> Developing architecture, GUI and modules of a scalable fluid simulation software 🌐 FluX> Developing algorithms and shaders for real-time facial expression control in mobile environments> Serving alternative military duty as a skilled industry personnel (Mar. 2010 - Jan. 2013) |

PUBLICATIONS

- TOG 2024 (SIG. Asia 2024) Hyojoon Park, Sangeetha Grama Srinivasan, Matthew Cong, Doyub Kim, **Byungsoo Kim**, Jonathan Swartz, Ken Museth, Eftychios Sifakis *Near-realtime Facial Animation by Deep 3D Simulation Super-Resolution*
- Remote Sensing 2024 Seung Man An, **Byungsoo Kim**, Chaeyeon Yi, Jeong-Hee Eum, Jung-Hun Woo, Wolfgang Wende *Study on Morphometrical Urban Aerodynamic Roughness Multi-Scale Exploration Using LiDAR Remote Sensing*
- EG 2023 Jingwei Tang, **Byungsoo Kim**, Vinicius C. Azevedo, Barbara Solenthaler *Physics-Informed Neural Corrector for Deformation-based Fluid Control*
- SIGGRAPH 2022 Lingchen Yang, **Byungsoo Kim**, Gaspard Zoss, Baran Gözcü, Markus Gross, Barbara Solenthaler *Implicit Neural Representation for Physics-driven Actuated Soft Bodies (*honorable mention)*
- EG 2022 **Byungsoo Kim**, Xingchang Huang, Laura Wuelfroth, Jingwei Tang, Guillaume Cordonnier, Markus Gross, Barbara Solenthaler *Deep Reconstruction of 3D Smoke Densities from Artist Sketches*
- J. Glaciology 2021 Guillaume Jouvét, Guillaume Cordonnier, **Byungsoo Kim**, Martin Lüthi, Andreas Vieli, Andy Aschwanden *Deep learning speeds up ice flow modelling by several orders of magnitude*
- T-RO 2021 Samuel L. Charreyron, Quentin Boehler, **Byungsoo Kim**, Cameron Weibel, Christophe Chautems, Bradley J. Nelson *Modeling Electromagnetic Navigation Systems*
- SCA 2020 Steffen Wiewel, **Byungsoo Kim**, Vinicius C. Azevedo, Barbara Solenthaler, Nils Thuerey *Latent Space Sub-division: Stable and Controllable Time Predictions for Fluid Flow*
- SIGGRAPH 2020 **Byungsoo Kim**, Vinicius C. Azevedo, Markus Gross, Barbara Solenthaler *Lagrangian Neural Style Transfer for Fluids (*selected for the video trailer and back cover of the proceedings)*
- EG 2020 Short Fabienne Christen, **Byungsoo Kim**, Vinicius C. Azevedo, Barbara Solenthaler *Neural Smoke Stylization with Color Transfer*
- EG 2020 Short Simon Biland, Vinicius C. Azevedo, **Byungsoo Kim**, Barbara Solenthaler *Frequency-Aware Reconstruction of Fluid Simulations with Generative Networks*
- SIGGRAPH Asia 2019 **Byungsoo Kim**, Vinicius C. Azevedo, Markus Gross, Barbara Solenthaler *Transport-Based Neural Style Transfer for Smoke Simulations (*selected for the video trailer)*
- EuroVis 2019 **Byungsoo Kim** and Tobias Günther *Robust Reference Frame Extraction from Unsteady 2D Vector Fields with Convolutional Neural Networks*
- EG 2019 **Byungsoo Kim**, Vinicius C. Azevedo, Nils Thuerey, Theodore Kim, Markus Gross, Barbara Solenthaler *Deep Fluids: A Generative Network for Parameterized Fluid Simulations*
- EG 2018 **Byungsoo Kim**, Oliver Wang, A. Cengiz Öztireli, Markus Gross *Semantic Segmentation for Line Drawing Vectorization Using Neural Networks*
- Int. J. GIS 2014 Seung Man An, Ho-Young Lee, **Byungsoo Kim**, Chae-Yeon Yi, Jeong-Hee Eum and Jung-Hun Woo *Geospatial Spreadsheets with Microscale Air Quality Visualization and Synchronization for Supporting Multiple-Scenario Visual Collaboration*
- Int. J. Climatol. 2013 Seung Man An, **Byungsoo Kim**, Ho-Young Lee, Chang-Hun Kim, Chae-Yeon Yi, Jeong-Hee Eum and Jung-Hun Woo *Three-Dimensional Point Cloud based Sky View Factor Analysis in Complex Urban Settings*
- KCGS 2013 **Byungsoo Kim**, Ho-Young Lee and Chang-Hun Kim *Visual Simulation of Vortex Particle using Adaptive Grid in High Vorticity Region*
- KCGS 2012 Kwang-Jin Choi, Kyung-Gun Na, Jong-Chul Yoon, **Byungsoo Kim**, Sehwi Park, Huicheol Hwang, Insang Yoon *FluX - A Software Platform for Large-Scale Fluid Simulation*

PATENTS

- US Patent *Physics-Informed Machine Learning Model-Based Corrector for Deformation-Based Fluid Control [US18237831]*
- US Patent *Data-driven physics-based models with implicit actuations [US18159651]*
- KR Patent *Apparatus and Method for Converting Geometric Coordinate [KR101449816B1]*
- KR Patent *Calculating System for Open Area Ratio of the Sky using Aerial LIDAR Data [KR101232292B1]*

HONORS & SCHOLARSHIPS

- 2024 Recipient of 2024 Frontiers of Science Award at the International Congress of Basic Science, China
- 2024 Nominated for 22nd Annual Visual Effects Society (VES) Award in the Emerging Technology Category, US
- 2014-2015 Recipient of Korean Government Scholarship from NIIED, Korea
- 2005-2008 Recipient of Presidential Science Scholarship, Certified by President Roh, Moo-hyun, Korea