

Education

- **Cornell University** Ithaca, NY, USA
PhD in Computer Science (MSc expected in May 2017); CGPA: 4.00/4.00 Aug. 2014 – Present
 - Areas of Focus: Computer Vision, Machine Learning, Deep Learning, Data Science
 - Advisor: Kavita Bala
- **Budapest University of Technology and Economics (BUTE)** Budapest, Hungary
MSc with Honors in Computer Science and Engineering; CGPA: 4.90/5.00 Jan. 2012 – Jan. 2014
 - Areas of Focus: Computer Graphics, Scientific Computation
 - Thesis: Dynamic Positron Emission Tomography
- **Budapest University of Technology and Economics (BUTE)** Budapest, Hungary
BSc with Honors in Computer Science and Engineering; CGPA: 4.87/5.00 Sept. 2008 – Jan. 2012
 - Areas of Focus: Computer Graphics, Scientific Computation
 - Thesis: List-mode Positron Emission Tomography (in Hungarian)

Selected Research Experience

- **Learning Aesthetic Compatibility** Summer Internship at Adobe
with Kavita Bala and Aaron Hertzmann June 2016 – Present
 - Developed a neural network based algorithm which makes suggestions for colors and images based on the context of an existing design. We learn this model using crowd-sourced evaluation of thousands of design templates, intelligently sampling with an active learning algorithm.
- **Shading Estimation with Deep Learning** Cornell University
with Sean Bell, Noah Snaveley and Kavita Bala Dec. 2015 – Present
 - Collected a new large-scale dataset of shading annotations in indoor scenes. We use this data to train a CNN to predict per-pixel shading information in an image and show that this can be used to reduce decomposition errors of intrinsic image algorithms.
- **Learning Clothing Style with Deep Neural Nets** Cornell University
with Andreas Veit, Sean Bell, Julian McAuley, Kavita Bala and Serge Belongie Jan. 2015 – Dec. 2015
 - Built a learning framework using siamese CNNs to extract style information from metadata and images downloaded from Amazon in order to generate outfits based on a query image.
- **Order Independent Transparency with Per-Pixel Linked Lists** BUTE
with Pál Barta and László Szécsi Jan. 2011 – May 2011
 - Developed a novel algorithm which allows rendering transparent objects efficiently using intersection points stored as linked lists on the GPU.
- **Positron Emission Tomography Reconstruction Using GPU** BUTE
with Milán Magdics, Balázs Tóth and László Szirmay-Kalos June 2010 – Feb. 2012
 - Developed a system using GPU optimization to solve different variants of the Positron Emission Tomography (PET) reconstruction problem.

Achievements & Awards

- Hungarian Republic Scholarship (2012)
- BUTE Computer Science Department Scholarship (2011, 2012)

Publications

- **B. Kovacs**, S. Bell, N. Snavely, K. Bala “*Shading Annotations in the Wild (SAW)*” The IEEE Conference on Computer Vision and Pattern Recognition, CVPR 2017.
- N. Bonneel, **B. Kovacs**, S. Paris, K. Bala “*Intrinsic Decompositions for Image Editing*” Computer Graphics Forum (Eurographics State of the Art Reports), 2017.
- A. Veit*, **B. Kovacs***, S. Bell, J. McAuley, K. Bala, S. Belongie (*equal contribution); “*Learning Visual Clothing Style with Heterogeneous Dyadic Co-occurrences*” IEEE International Conference on Computer Vision, ICCV 2015.
- L. Szécsi, P. Barta, **B. Kovacs**; “*Volumetric Transparency with Per-Pixel Fragment Lists*” Wolfgang Engel (editor) GPU PRO 3: Advanced Rendering Techniques (pp. 323-336). New York: CRC Press, Taylor & Francis Group, 2012.
- **B. Kovacs**; “*List Mode PET Reconstruction*” VI. Hungarian Computer Graphics and Geometry Conference. Budapest, Hungary, 2012.
- P. Barta, **B. Kovacs**; “*Order Independent Transparency with Per-Pixel Linked Lists*” Central European Seminar on Computer Graphics. Viničné , Slovakia, 2011.
- M. Magdics, B. Tóth, **B. Kovacs**, L. Szirmay-Kalos; “*Total Variation Regularization in PET Reconstruction*” Képfeldolgozók és Alakfelismerők VIII. Konferenciája. Szeged, 2011.

Work Experience

- **Tresorit – Secure Cloud File Synchronization Software** Budapest, Hungary
Tresorit Kft. Nov. 2011 – July 2014
 - Tresorit is a secure file sharing service with emphasis on strong security and ease of use. As one of the first employees I worked on fundamental features like file synchronization, implementation of the invitation protocol, certificate handling, local caching and profile handling among others. All work was done in C++ in the Core Team.
- **Web Game Developer** Budapest, Hungary
BUTE July 2011 – Nov. 2011
 - Developed a webpage to host online games and a tower-defense game in HTML5 and C#.

Teaching Experience

- **Teaching Assistant** Ithaca, NY, USA
Cornell University Aug. 2014 – May 2015
 - *CS4620 Introduction to Computer Graphics*: Responsible for grading assignments, holding office hours, advising project teams and creating assignments, exams.
 - *CS4670 Introduction to Computer Vision*: Responsible for grading assignments, holding office hours and creating assignments, exams.
- **Teaching Assistant** Budapest, Hungary
BUTE Jan. 2014 – June 2014
 - *Software Laboratory 2*: Responsible for holding laboratory sessions for international students, explaining the material and grading.

Skills

- **Programming**: Python, C/C++, C#, Java
- **Tools**: BVLC Caffe, NumPy/SciPy, scikit-learn, Django, Redis, Celery/RabbitMQ, StarCluster, Git, Vim
- **Platforms**: Ubuntu, Amazon AWS EC2
- **Languages**: Proficient in Hungarian and English. Basic knowledge in French.