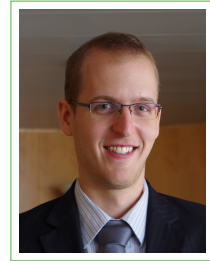


Norbert Bus

Curriculum Vitae

✉ norbert.bus@therapanacea.eu
📁 busnorbert.bitbucket.io



Education

- 2012–2015 **PhD Computer Science**, *Université Paris-Est*, Paris.
Title: The use of geometric structures in graphics and optimization.
Advisors: Nabil H. Mustafa, Venceslas Biri, Lilian Buzer.
- 2010–2014 **MSc Mathematics**, *Budapest University of Technology and Economics*, Budapest.
Graduated with highest honors.
Specialized in combinatorics and algorithms.
- 2011–2012 **Master 2 Computer Science**, *Université Paris-Est*, Paris.
Mention très bien (highest honors).
Signal processing, computer vision and computer graphics studies.
- 2007–2010 **BSc Mathematics**, *Budapest University of Technology and Economics*, Budapest.
Graduated with highest honors.
Extra studies in software engineering.

Employment

- 2017– **Research engineer**, *TheraPanacea SAS*, Paris.
Development of simulation engines for radiotherapy.
- 2015–2017 **Postdoc in computer graphics**, *Télécom ParisTech*, Paris.
Research group of Tamy Boubekeur. Participating in the Papaya project with Ubisoft.
- 2010–2011 **Computer scientist**, *Dolphio Technologies*, Budapest.
Development of tracking algorithms for embedded systems and research for automatic generation of statistics of football games based on camera footage (C++, OpenCV, ARM NEON, MATLAB).
- 2007–2008 **Junior software engineer**, *Binarit Ltd.*, Budapest.
Development of internal webpages and applications for third party companies (ASP.NET, custom XML).

Research interests

Computer graphics, high performance computing, computer vision.

Computer skills

Most recently developing radiotherapy simulation engines in CUDA.
Rendering algorithms with Intel Embree & Mitsuba (C++).

Proficient in C\C++, CUDA

Experience in python, docker

Publications

Norbert Bus, Nabil H. Mustafa, and Saurabh Ray. "Practical and efficient algorithms for the geometric hitting set problem". *Discrete Applied Mathematics* 240 (2018), pp. 25–32.

Maria Vakalopoulou, Guillaume Chassagnon, Norbert Bus, R. Marini, Evangelia I. Zacharaki, Marie-Pierre Revel, and Nikos Paragios. "AtlasNet: Multi-atlas Non-linear Deep Networks for Medical Image Segmentation". *Medical Image Computing and Computer Assisted Intervention - MICCAI 2018 - 21st International Conference, Granada, Spain, September 16-20, 2018, Proceedings, Part IV*. 2018, pp. 658–666.

Norbert Bus and Tamy Boubekeur. "Double hierarchies for efficient sampling in Monte Carlo rendering". *Special Interest Group on Computer Graphics and Interactive Techniques Conference, SIGGRAPH 2017, Los Angeles, California, USA, July 30 - August 3, 2017, Talks*. 2017, 36:1–36:2.

Norbert Bus, Shashwat Garg, Nabil H. Mustafa, and Saurabh Ray. "Limits of Local Search: Quality and Efficiency". *Discrete & Computational Geometry* 57.3 (2017), pp. 607–624.

Maria Vakalopoulou, Norbert Bus, Konstantinos Karantzas, and Nikos Paragios. "Integrating edge/boundary priors with classification scores for building detection in very high resolution data". *2017 IEEE International Geoscience and Remote Sensing Symposium, IGARSS 2017, Fort Worth, TX, USA, July 23-28, 2017*. 2017, pp. 3309–3312.

Norbert Bus, Shashwat Garg, Nabil H. Mustafa, and Saurabh Ray. "Tighter Estimates for epsilon-nets for Disks". *Computational Geometry: Theory and Applications*. Vol. 53. 2016.

Norbert Bus, Nabil H. Mustafa, and Venceslas Biri. "IlluminationCut". *36th Annual Conference of the European Association for Computer Graphics (Eurographics)*. 2015.

Norbert Bus, Nabil H. Mustafa, and Venceslas Biri. "Global Illumination Using Well-Separated Pair Decomposition". *Computer Graphics Forum (presented at EG 2016)*. Vol. 34. 8. 2015.

Norbert Bus, Shashwat Garg, Nabil H. Mustafa, and Saurabh Ray. “Improved Local Search for Geometric Hitting Set”. *32st International Symposium on Theoretical Aspects of Computer Science (STACS)*, also submitted to a journal. 2015.

Norbert Bus, Nabil H. Mustafa, and Saurabh Ray. “Geometric Hitting Sets for Disks: Theory and Practice”. *23rd European Symposium on Algorithms (ESA)*. 2015.

Norbert Bus and Lilian Buzer. “Dynamic Convex Hull for Simple Polygonal Chains in Constant Amortized Time per Update”. *Proceedings of the 31th European Workshop on Computational Geometry (EuroCG)*. 2015.

Talks

- 2016 “Improving the Efficiency of Clustering in the Many-Lights Methods”. Invited talk at DFKI (German Research Centre for Artificial Intelligence).
- 2015 “Compact Geometric Structures in Graphics”. Journées Informatique et Géométrie.
- 2015 “Approximation Algorithms for Independent Set/Hitting Set of Non-Piercing Rectangles via Local-Search”. International Symposium on Mathematical Programming.
- 2014 “Improved Algorithm for Hitting Sets”. Recent Advances in Linear Optimization.
- 2013 “Light Clustering for Photorealistic Rendering”. Journée du Groupe de Travail de Géométrie Discrète.

Languages

Hungarian	Native	<i>native language</i>
English	Fluent	<i>used every day at work (CEFR level: C1 certificate)</i>
German	Intermediate	<i>inactive (CEFR level: B2 certificate)</i>
French	Beginner	

Interests

Hiking, swimming and squash.