

# Norbert Bus

## Curriculum Vitae

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### Education

- 2012–Present **PhD Computer Science**, *Université Paris-Est*, Paris.  
Subject: 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.  
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

- 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

Computational geometry, computer graphics, computer vision.

### Computer skills

Most recently developing realistic 3D rendering algorithms with Intel Embree (C++).

**Proficient in** C\C++, MATLAB

**Experience in** python, CUDA, C#,  $\LaTeX$ , ARM NEON, JavaScript, OpenCV, OpenGL, Qt, .NET, OpenNI, Git, Mercurial

## Publications

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, accepted*. 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, Shashwat Garg, Nabil H. Mustafa, and Saurabh Ray. "Tighter Estimates for epsilon-nets for Disks". *Computational Geometry: Theory and Applications, submitted*. 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), also submitted to a journal*. 2015.

## Talks

- 2015 Upcoming talk at International Symposium on Mathematical Programming.
- 2014 "Hitting Sets for Disks via Local-Search". Seminar at ESIEE Paris.
- 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.

## Achievements

- 2011–2012 Bézout Excellence Track, 1 year scholarship at Université Paris-Est.
- 2003–2007 Finalist in several national mathematics competitions for secondary schools.

## Teaching

- 2014 fall Introduction to graphical user interface programming using Qt 5.
- 2015 spring Introduction to CUDA programming.

## Review work

- 2015 The 31st International Symposium on Computational Geometry (SOCG 2015)

2015 The 23rd European Symposium on Algorithms (ESA 2015)

## Languages

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

## Interests

Squash, swimming and hiking.

## References

### **Nabil H. Mustafa**

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PhD thesis director

### **Katalin Friedl**

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MSc thesis advisor

### **Venceslas Biri**

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### **Lilian Buzer**

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