

# CURRICULUM VITÆ

## PERSONAL INFORMATION

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| Name         | Markus Andreas Daniel Blumenstock |
| Birth        | 1990 in Frankfurt am Main         |
| Nationality  | German                            |
| Civil status | Married, two children             |

## PROFESSIONAL EXPERIENCE

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|-------------------|---|
| Since 11/2014     | Research assistant with teaching responsibilities<br>Algorithmics Group, Institute of Computer Science<br>Johannes Gutenberg University Mainz |
| 03/2020 – 10/2020 | Parental leave (part-time, 2/3)   |
| 03/2018 – 10/2018 | Parental leave (full-time)  |

## EDUCATION

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|-------------------|---|
| 01/2015 – 11/2019 | Doctorate ( <i>summa cum laude</i> ), University of Mainz<br>Thesis title: <i>Pseudoforest Partitions and the Approximation of Connected Subgraphs of High Density</i><br>Advisor: Professor Ernst Althaus  |
| 10/2012 – 09/2014 | Master of Science (grade 1.3), University of Mainz<br>Computer science, focus on mathematics<br>Thesis title: <i>Graph Clustering and Jaccard Similarity Estimation in Offline and Streaming Settings</i><br>Advisor: Professor Stefan Kramer       |
| 10/2009 – 09/2012 | Bachelor of Science (grade 1.6), University of Mainz<br>Computer science, minor in mathematics<br>Thesis title: <i>Application-Oriented Scheduling with Eligibility Restrictions and Precedence Constraints</i><br>Advisor: Professor Elmar Schömer |
| 08/2000 – 06/2009 | Abitur (secondary school qualifications, grade 1.4)<br>Graf-Stauffenberg-Gymnasium in Flörsheim am Main   |

## RESEARCH VISITS AND INTERNSHIPS

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|-------------------|---|
| 09/2017 – 12/2017 | Visiting graduate student<br>Department of Combinatorics & Optimization<br>University of Waterloo, Canada<br>Supervisor: Professor Jochen Könnemann |
| 03/2012 – 09/2012 | Academic visitor<br>Department of Computer Science<br>The University of Waikato, Hamilton, New Zealand<br>Supervisor: Professor Bernhard Pfahringer |
| 08/2011 – 10/2011 | Internship at Raytheon Professional Services GmbH<br>Rüsselsheim, Germany   |

## TEACHING

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|                         |  |
|-------------------------|--|
| Lectures given          | Advanced Algorithms (ongoing)<br>Formal Languages and Computability<br>Advanced Complexity Theory  |
| Theses supervised       | Bachelor thesis (1x)   |
| Seminars                | The Modern Algorithmic Toolbox<br>Algorithms and Complexity  |
| Head teaching assistant | Efficient Algorithms and Data Structures<br>Game Theory (2x)<br>Complexity Theory<br>Advanced Complexity Theory<br>Formal Languages and Computability (2x) |
| Lab courses             | Efficient Algorithms and Data Structures (2x)<br>Advanced Algorithms (2x)<br>Approaching Programming Contests (2x)   |
| Student TA              | Efficient Algorithms and Data Structures (2x)<br>Complexity Theory (2x)<br>Formal Languages and Computability  |

## PUBLICATIONS

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- 01/2020 M. Blumenstock and F. Fischer. A Constructive Arboricity Approximation Scheme. In *Proceedings of the 46th International Conference on Current Trends in Theory and Practice of Computer Science (SOFSEM 2020)*. Lecture Notes in Computer Science, Vol. 12011, pp. 51–63. Springer, 2020. DOI: [https://doi.org/10.1007/978-3-030-38919-2\\_5](https://doi.org/10.1007/978-3-030-38919-2_5)
- 01/2020 M. Blumenstock. Pseudoforest Partitions and the Approximation of Connected Subgraphs of High Density. *PhD thesis*, Johannes Gutenberg University Mainz, 2020. [https://www.algorithmics.informatik.uni-mainz.de/files/2020/06/Blumenstock\\_Thesis\\_corrected-1.pdf](https://www.algorithmics.informatik.uni-mainz.de/files/2020/06/Blumenstock_Thesis_corrected-1.pdf)
- 01/2016 M. Blumenstock. Fast Algorithms for Pseudoarboricity. In *Proceedings of the Eighteenth Workshop on Algorithm Engineering and Experiments (ALENEX 2016) in Arlington, Virginia, USA, January 2016*, pp. 113–126. Society for Industrial and Applied Mathematics, 2016. <https://doi.org/10.1137/1.9781611974317.10>
- 12/2014 E. Althaus, M. Blumenstock, A. Disterhoft, A. Hildebrandt, and M. Krupp. Algorithms for the Maximum Weight Connected  $k$ -Induced Subgraph Problem. In *8th International Conference on Combinatorial Optimization and Applications (COCOA 2014), Wailea, Hawaii, USA, December 2014*. Lecture Notes in Computer Science, Vol. 8881, pp. 268–282. Springer, 2014.

## SCIENTIFIC SERVICE

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- 2020 Participation in the accreditation of study programs
- 2018 – 2019 Member of a professorship appointment committee
- 2016, 2017 Judge for the *German Collegiate Programming Contest*
- 2015, 2016 Coach at the *ICPC Northwestern Europe Regional Contest*
- 2015 Review for *Mathematical Programming Computation*

## PRIZES AND SCHOLARSHIPS

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|-------------------|---|
| 09/2017 – 12/2017 | Scholarship of the German Academic Exchange Service   |
| 2012              | <i>Faculty Prize for Excellent Theses</i> for the bachelor thesis<br>Faculty for Physics, Mathematics and Computer Science<br>University of Mainz |

## LANGUAGES

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|----------------------|--|
| German               | Native   |
| English              | Proficient<br>Cambridge Certificate in Advanced English, grade A |
| Latin                | Latinum (high-school certificate)                                |
| Ancient Greek        | Graecum (high-school certificate)                                |
| Brazilian Portuguese | Basics   |

## OTHER VOLUNTARY WORK

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|-------------------|---|
| 03/2009 – 12/2014 | Emergency management in the Main-Taunus district<br>Volunteer Fire Brigade Eddersheim<br>(until 06/2011: in lieu of mandatory military service) |
| 09/2010 – 06/2017 | Youth Work (age 6-10 years)<br>Volunteer Fire Brigade Eddersheim  |