

# CURRICULUM VITAE

## CARL MAXIMILIAN MILLER

### ADDRESS

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### MOBILE

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## PROFILE

### Date of birth

October 2nd, 1984  
Muenchberg  
Germany

### Nationality

German

### Marital status

single

## LANGUAGES

### German

Mother tongue

### English

Business fluent

### Spanish

Fluent

## PROGRAMMING

Java/JS, Python, R, PHP

HPC (SGE, SLURM)  
Cloud Computing

Machine- / Deep-  
Learning

Web-Services / APIs

Docker Full-stack  
Development

## WORK EXPERIENCE

### Post-Doctoral Associate (since 01/2018)

Molecular patterns of disease; Variant effect prediction  
Technical University Munich / Rutgers University

### Research Assistant, PhD (10/2015 - 12/2017)

Protein function in the context of genetic diseases  
Technical University Munich / Rutgers University

### Research Assistant (10/2013 - 09/2015)

Evolutionary trace of protein structure  
LFE Bioinformatics, LMU, Munich, Germany; Prof. Ralf Zimmer

### IT-Consulting, ROKundCO GmbH (2009 - 2012)

Munich, Germany

### Research Assistant, Student (10/2006 - 04/2007)

LFE Bioinformatics, Munich, Germany

### Student Trainee & Internship, IT (06/2006 - 04/2007)

Fred Butler (Linde Gas), Munich, Germany

## PUBLICATIONS

12. Norambuena, J., **Miller, M.**, Boyd, J. M., & Barkay, T. (2020). "Expression and regulation of the mer operon in *Thermus thermophilus*" *Environmental Microbiology*, doi:10.1111/1462-2920.14953

11. Zhu, C., **Miller, M.**, Lusskin, N., Mahlich, Y., Wang, Y., Zishuo, Z. & Bromberg, Y. (2019). "Fingerprinting cities: differentiating subway microbiome functionality" *Biology Direct*, doi:0.1186/s13062-019-0252-y

10. **Miller, M.**, Vitale, D., Kahn, P. C., Rost, B., & Bromberg, Y. (2019). "funtrp: Identifying Protein Positions for Variation Driven Functional Tuning." *Nucleic Acids Res.*, doi:10.1093/nar/gkz818

9. Wang, Y., **Miller, M.**, . . . , Bromberg, Y. *et al.* (2019). "Identifying Crohn's Disease Signal from Variome Analysis." *Genome Medicine*, doi:10.1186/s13073-019-0670-6

8. Voskanian, A., . . . , **Miller, M.**, . . . , Kann, M. G. *et al.* (2019). Assessing the performance of in-silico methods for predicting the pathogenicity of variants in the gene CHEK2, among Hispanic females with breast cancer. *Hum Mutat.* doi:10.1002/humu.23849

7. Pejaver, V., . . . , **Miller, M.**, . . . , Bromberg, Y. *et al.* (2019). Assessment of methods for predicting the effects of PTEN and TPMT protein variants. *Hum Mutat.* doi:10.1002/humu.23838

6. Monzon, A. M., . . . , **Miller, M.**, . . . , Tosatto, S. C. E *et al.* (2019). Performance of computational methods for the evaluation of Pericentriolar Material 1 missense variants in CAGI-5. *Hum Mutat.* doi:10.1002/humu.23856

5. **Miller, M.**, Wang, Y., Bromberg, Y. (2019). What went wrong with variant effect predictor performance for the PCM1 challenge. *Human Mutat.*, doi:10.1002/humu.23832
4. **Miller, M.**, Bromberg, Y., & Swint-Kruse, L. (2017). Computational predictors fail to identify amino acid substitution effects at rheostat positions. *Scientific Reports*, 7, 41329
3. **Miller, M.**, Zhu, C. & Bromberg, Y. (2017). clubber: removing the bioinformatics bottleneck in big data analyses. *Journal of Integrative Bioinformatics*, 14(2), pp. -. Retrieved 9 Nov. 2017, from doi:10.1515/jib-2017-0020
2. Zhu, C., Mahlich, Y., **Miller, M.**, Bromberg, Y. (2017). fusionDB: assessing microbial diversity and environmental preferences via functional similarity networks. *Nucleic Acids Res.* gkx1060, doi:10.1093/nar/gkx1060
1. Zhu, C., **Miller, M.**, Marpaka, S., Vaysberg, P., Rühlemann, MC., Heinsen, F-A., Tempel, M., Lieb, W., Franke, A., Bromberg, Y. (2017). Functional sequencing read annotation for high precision microbiome analysis. *Nucleic Acids Res.* gkx1209, doi:10.1093/nar/gkx1209

## STUDIES

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### **PhD (Dr. rer. nat) Bioinformatics** (1/2016 - 3/2018)

Technical University Munich (TUM), Munich, Germany & Rutgers University (RU), New Jersey, Thesis: "*Functional profiles of health: elucidating genetics and microbiome of human disease*" (passed)

### **Master-Studies Bioinformatics** Grade 1.4 (4/2009 - 3/2012)

Ludwig-Maximilians-University (LMU) / Technical University Munich (TUM) Germany, Thesis: "*Context-based prediction of protein binding strength*" (1.0)

### **Bachelor-Studies Bioinformatics** at LMU/TUM Munich (10/2005 - 3/2009)

## Talks & Presentations

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### **ISMB 2019** (Basel)

Intelligent Systems for Molecular Biology, Oral presentation & Poster

### **ISMB 2018** (Chicago)

Intelligent Systems for Molecular Biology, Oral presentation

### **ISMB 2017** (Prague)

Intelligent Systems for Molecular Biology, Oral presentation

### **IB 2017** (Denmark)

International Symposium on Integrative Bioinformatics Oral presentation

## EXPERIENCES ABROAD

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### **Round-the-world trip** (05/2012 - 09/2013)

including South America, the Caribbean, USA, Pacific Islands, Australia, New Zealand, Central-/South-east-Asia, Nepal, India, China, South Africa

### **Development aid in Bolivia** (10/2004 bis 01/2005)

South America, Institution: Hostelling International

## EXTRACURRICULAR ACTIVITIES

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### **Member and Board of L'Ensemble Medical at LMU Munich** (2010 - 2012)

Management and organization, worldwide tours including Israel, Italy, USA

### **Co-Founder, manager and guitarist of the band Plan B** (2005 - 2009)

Management, (show) concepts, and musical arrangements  
(www.band-plan-b.com)

### **Internationally known choir: Augsburgers Domsingknaben** (1993 - 2005)

National and international tours, CD productions and opera participations