

# EMMA GRIFFITHS

## PERSONAL INFORMATION

Citizenship: South African  
Residence: Germany  
Sex: Female  
Languages: English (Native), German (A2)  
LinkedIn: <https://www.linkedin.com/in/emma-griffiths-7a366a9a/>



## EMPLOYMENT HISTORY

### November 2021 – Present

#### Postdoctoral Researcher at Friedrich-Alexander-Universität Erlangen-Nürnberg

Here I am involved in the creation and simulation of brain models to simulate neurosurgery. This position involves the solving of complex and large problems that have never been attempted before. During this time MATLAB, Python and C++ were explored and utilized to some degree. See <https://github.com/EmmaTG/BrainMesher> for an example of what I have done here.

### 2020 – 2021

#### Graduate Software Developer at Dariel, South Africa

In this position the development of software solutions for a variety of clients was conducted. An application to assist a bank to update their complex relational database was developed. All areas of this application were tasked to me, these included: frontend creation (Angular and PrimeNG), backend data handling (Java, SpringBoot), Database maintenance (MySQL), API requests (AWS lambda), operations management and development pipeline (Azure DevOps and AWS ECS).

### 2019-2019

#### Ad-Hoc Lecturer at the University Cape Town

I lectured two courses to master's students at the University of Cape Town  
Courses: Introduction to the Finite Element Method and Nonlinear Finite Element Methods.

## EDUCATION

1. Undergraduate studies  
Degree: Mechanical Engineering (BscEng(Mech))  
Completed: December 2015
2. Post-Graduate Studies  
PhD (Mech Eng) in Computational and applied mechanics (CERECAM) at the University of Cape Town. A focus on finite element multi-physical simulations of hierarchical composites with the aim of understanding the micro-mechanical mechanisms present.  
Conferral date: December 2020

## SKILLS

### LANGUAGES

JAVA					
C++					
PYTHON					
HTML, CSS					
JAVASCRIPT					
TYPESCRIPT					

### FRAMEWORKS

ANGULAR					
SPRINGBOOT					
REACT					

### DATABASES

MySQL					
POSTGRESQL					
MONGODB					

### TOOLS

MATLAB					
DOCKER					
AZURE DEVOPS					
LINUX					
GIT					
AWS					

Key:

<b>Novice</b>					
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<b>Adv. Beginner</b>					
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<b>Competent</b>					
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<b>Proficient</b>					
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<b>Expert</b>					
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## CERTIFICATIONS

- AWS Certified Cloud Practitioner (Validation Number B6ZSGBNBLE1QQM3P)

## PERSONAL PROJECTS

- GitHub: <https://github.com/EmmaTG>

## PUBLICATIONS

- Emma Griffiths, Swantje Bargmann, and B. Daya Reddy. "Elastic behaviour at the nanoscale of innovative composites of nanoporous gold and polymer." *Extreme Mechanics Letters*, 17, (2017):16-23. <https://doi.org/10.1016/j.eml.2017.09.006>
- Emma Griffiths, Jana Wilmers, Swantje Bargmann and B. Daya Reddy. "Nanoporous metal based composites: Giving polymers strength and making metals move." *Journal of the Mechanics and Physics of Solids*, 137, (2019):103848. <https://doi.org/10.1016/j.jmps.2019.103848>
- Emma Griffiths, Celal Soyarslan, Swantje Bargmann and B. Daya Reddy. "Insights into fracture mechanisms in nanoporous gold and polymer impregnated nanoporous gold." *Extreme Mechanics Letters*, (2020): 100815.
- E. Griffiths, J. Hinrichsen, N. Reiter, S. Budday. "On the importance of using region-dependent material parameters for full-scale human brain simulations." *European Journal of Mechanics - A/Solids* 99, (2023):104910. <https://doi.org/10.1016/j.euromechsol.2023.104910>
- E. Griffiths., & S. Budday. (2022). Finite element modeling of traumatic brain injury: Areas of future interest. *Current Opinion in Biomedical Engineering*, 24, 100421. <https://doi.org/10.1016/j.cobme.2022.100421>