



UNIVERSITÄT  
HEIDELBERG  
ZUKUNFT  
SEIT 1386

# 2026 Open Call of the Scientific Software Center

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# SSC mission

## Mission Statement

*The Scientific Software Center strives to improve research software development practices at Heidelberg University and beyond, to promote reproducible science and research software sustainability.*

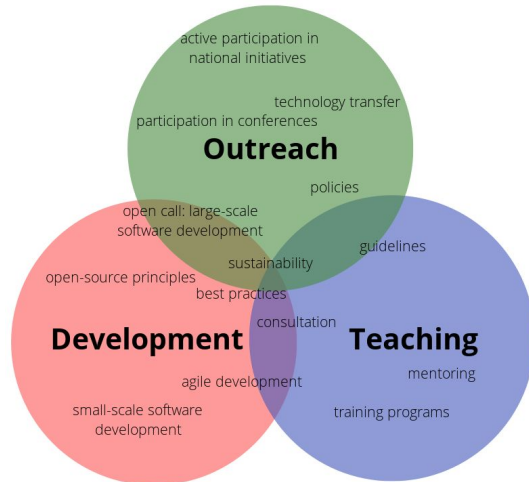
Development & Sustainability

Teaching & Consultation


Outreach & Communication

# SSC team








- Currently eleven Research Software Engineers (RSEs)
- Shared leadership:
  - Liam Keegan
  - Dominic Kempf
  - Inga Ulusoy



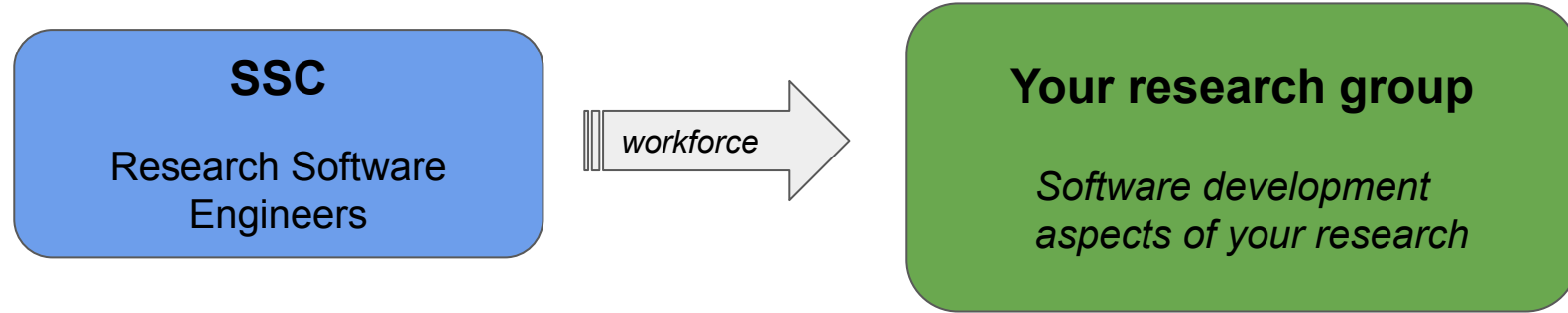
# Previous Open Call projects

	Field	Project Type	Year
<b>Alignment Workflow for Deformed EM images</b>	Biosciences	Open Call Project	2025
Alignment workflow for deformed electron microscopy images of entire planktonic animals			
<b>Analysing multimedia content from social media</b>	political sciences	Open Call Project	2025 
AI-based media and content analysis tool			
<b>Genome processing pipeline</b>			
Improving and extending a genome processing pipeline and			
<b>NeuroSeq extension</b>			
Improve quality of neuroseq prototype and extend it to interf			
<b>Page Segmentation for Early Chinese Periodicals Online</b>			
Development of a page segmentation model for Chinese new			
<b>Scia-DFT</b>			
Performance improvements of machine-learned orbital-free			

<b>MONDEY</b>	Psychology	Open C	
MONDEY (Milestones of Normal Development in Early Years) website			
<b>CebraEM</b>	Biosciences	Open C	
Quantifying organelle geometry and morphology based on volume electron mi-			
<b>Identifying stolen cultural heritage</b>	Cultural Studies	Open C	
Identification of (potentially stolen) cultural heritage objects with computer vi-			
<b>Refactoring of PoWR code</b>	Astronomy	Open C	
Modernisation of the Potsdam Wolf-Rayet Stellar Atmospheres code.			
<b>rubix</b>	Astronomy	Open Call Project	2023
Consultation on software architecture for GPU-computing with JAX and soft-			
<b>SIMPA</b>	Biosciences	Open Call Project	2023
Performance improvements for the toolkit for Simulation and Image Processing			

<b>Dust polarization observations</b>	Astronomy, Physics	Open Call Project	2022	
Improve portability and quality of code and tooling				
<b>Misinformation campaigns characteristics</b>	Social Sciences	Open Call Project	2022	
Open-source software to analyze image and text content of social media posts				
<b>Moralization in written texts</b>	Modern Languages	Open Call Project	2022	
Interface to train language models for multi-label token classification				
<b>Parafields</b>	Scientific Computing	Open Call Project	2022	
Development of an MPI-parallel Python library for the generation of stationary				
<b>Predictive modeling in TB screening</b>	Medicine	Open Call Project	2022	
Develop a machine learning model to predict TB disease				
<b>Ribosome profiling</b>				
Enhance the quality, p				
<b>AFWizard: Adaptive ground point filtering for aerial archaeology</b>	Geography, History	Open Call Project	2021 - 2022	
Python framework to facilitate complex ground point filtering workflows in ar-				
<b>Corpus and argumentation</b>	Modern Languages	Open Call Project	2021	
Open-source software to automatize annotation and database encoding of lin-				
<b>Neuroscience data processing and analysis</b>	Biosciences	Open Call Project	2021	
Deploying and improving analysis pipelines on HPC resources				
<b>Systems biology parameter estimation GUI</b>	Biosciences	Open Call Project	2021	
Extend parameter fitting functionality and integrate into the existing GUI				

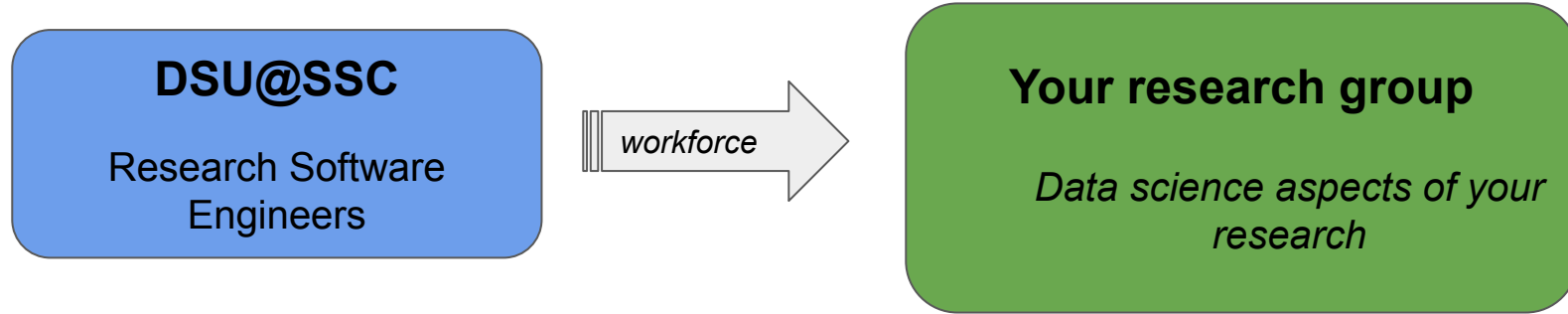
# What can you apply for in this call?



- Custom development of **new scientific software** for a research project
- Addition of **new functionality** into existing research software
- Development that **increases the software quality** of existing research software (e.g. performance, scalability, portability, usability, reusability etc.)
- Adoption of **best practices** for the development of scientific software

**New!**

What can you apply for in this call?



- **Develop new** data science solutions from scratch for specific questions
- **Augment or enhance existing** data science workflows with new models or functionality, increase reproducibility, scalability and trustworthiness
- **Adoption of best practices for data science projects**

# Example 1: Custom development of new scientific software

*Great research idea:*  
Expand into new methodological area



Methodology/concept has been developed on paper or in other research group; proof of concept

**Your research group**

- students
- Postdocs

*knowledge transfer*

Implementation of the methodology using efficient algorithms and modern libraries

Test suite that ensures reproducibility; set up continuous integration

Documentation of the Software using modern tools and platforms; tutorials/examples

Version control and licensing models

**Contribution of the SSC**  
e.g. 6 months of workforce

## Example 2: Custom development of a data science system

*Great research idea:*  
Expand into new  
methodological area

Idea/concept has been developed on  
paper or in other research group;  
proof of concept

**Your research  
group**

- students
- Postdocs

*knowledge transfer*

Build scalable data  
processing- and  
augmentation  
pipeline

Select and  
evaluate model  
architectures  
and paradigms  
together with  
research group

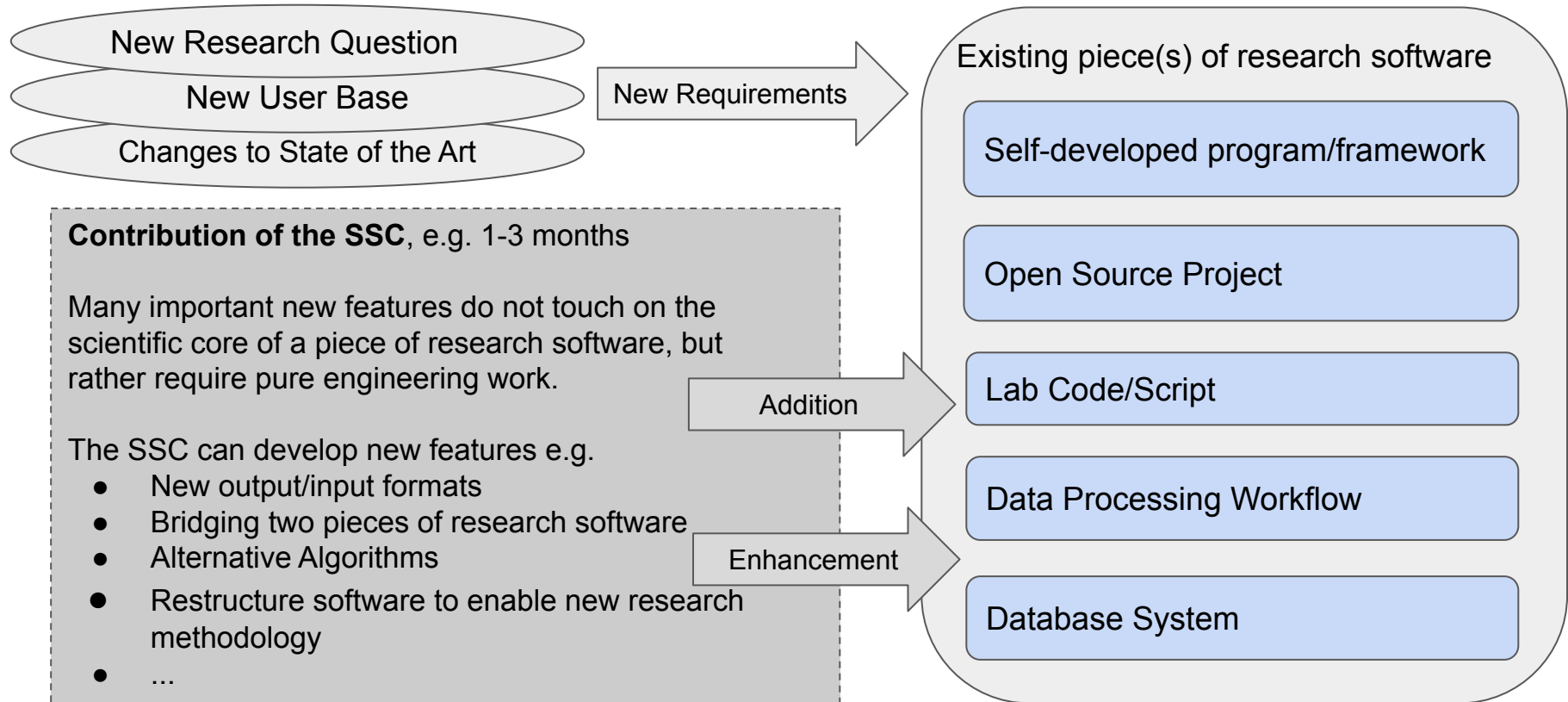
Train, evaluate and  
verify selected  
model to ensure  
reproducibility and  
trustworthiness

Test and  
document  
produced  
software  
using best  
practices

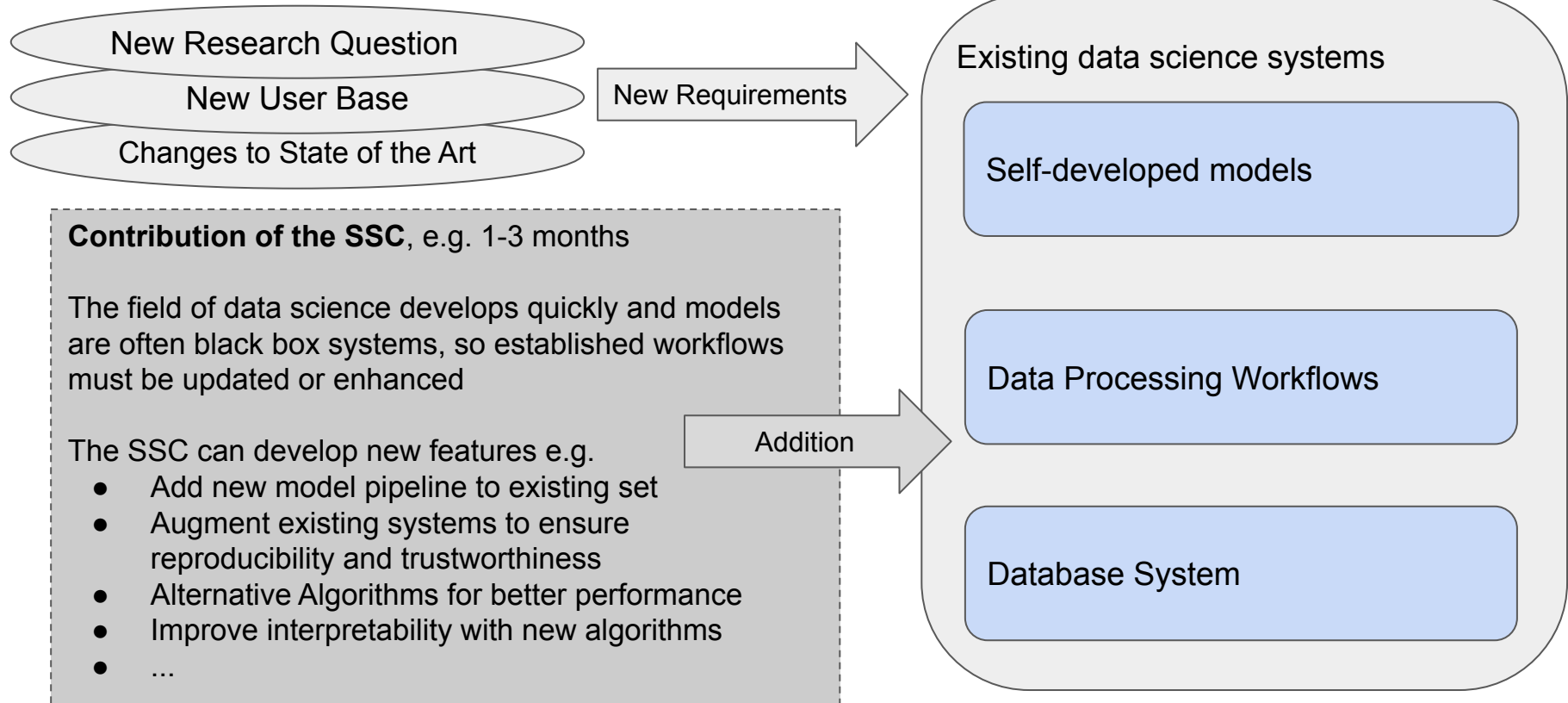
**Contribution of the SSC**

e.g. 6 months of workforce

## Example 3: New functionality for existing software



## Example 4: Augmenting existing machine learning pipeline



## Example 5: Increase quality of existing research software

Involvement of students/postdoc knowledge transfer

*Existing research software that has been developed in your group*

- Low performance
- Low parallel scaling
- Dependence on a specific set of libraries (possibly outdated)

**Contribution of the SSC**

e.g. 3 months of workforce

Analysis and improvement of serial performance

Analysis and improvement of parallel performance

Suggestion and implementation of interface to alternative libraries; updated build system

*Other examples could involve:*

- portability of the software (different environments/operating systems)
- usability (user interface, code structure)
- reusability (generalization of the software)
- ...

## Example 6: Adoption of best practices

**Status Quo:** A research group develops a lab code that is passed on from PhD generation to generation. Everybody adds functionality and examples from their work.

Code divergence

Insufficient Testing

“Grown” software design

Lack of Documentation

Introducing Git + GitHub/GitLab

Setting up CI + Introducing testing frameworks

Code refactoring: Software Design consultation + Sprint supervision

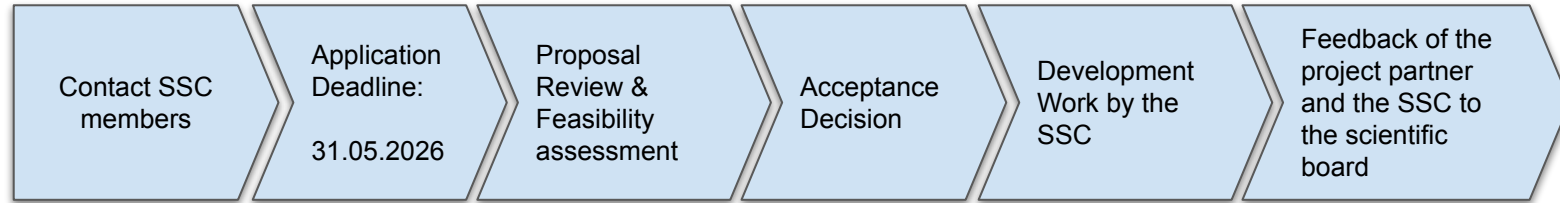
Introducing documentation tools  
E.g. Sphinx + Doxygen

**SSC Contribution:** A developer joins the group and introduces best practices that follow the state of the art in software development.

*Implementation:* We set up tools and configurations for the group

*Training:* We teach the group to enable long term improvement

# How to apply



- Get in touch with us to discuss your application before applying:
  - [ssc@uni-heidelberg.de](mailto:ssc@uni-heidelberg.de)
- Then submit your application online:
  - [limesurvey.urz.uni-heidelberg.de/index.php/979996](https://limesurvey.urz.uni-heidelberg.de/index.php/979996)
- Applications can be written in English or German.

# Evaluation criteria and process

The decision is taken by the scientific board of the SSC.

Criteria:

- Feasibility statement of the SSC
- Scientific merit of the proposal
- Clarity of what is expected from the SSC
- Leverage of project outcome
- Criteria about applicant:
  - Enabling interdisciplinary collaborations
  - Supporting Early Career Researchers
  - Aiding equal opportunities

Question Time!

# Get in touch!

By email:

- [ssc@uni-heidelberg.de](mailto:ssc@uni-heidelberg.de)

Or have a closer look at our services on our website:

- [ssc.uni-heidelberg.de](http://ssc.uni-heidelberg.de)