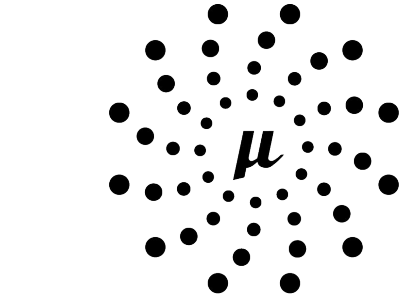
# Micronaut Community Town Hall

## Panelists:

**Sergio del Amo, Graeme Rocher, Steve Totten, Kate Holdener, and Jen Wiese**

**February 2023**

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# Agenda

- Introductions
- Updates and Upcoming Events
- Partnership with SLU
- Micronaut framework
- Micronaut Foundation
- Community Q&A

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# MICRONAUT COMMUNITY RESOURCES

- @micronautfw
- gitter.im/micronautfw
- micronaut.io/launch
- micronaut.io/docs
- micronaut.io/guides
- micronaut.io/blog
- micronaut.io/faq
- micronaut.io/foundation
- github.com/micronaut-projects/micronaut-core
- micronaut.io/support
- micronaut.io/resources/community-support
- micronaut.io/upcoming-events

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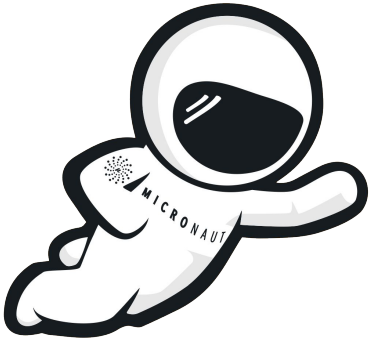
# Community Updates

- Community Resource Page
  micronaut.io/resources/community-support

- Event Support Form
  micronaut.io/resources/community-support/event-publication-request

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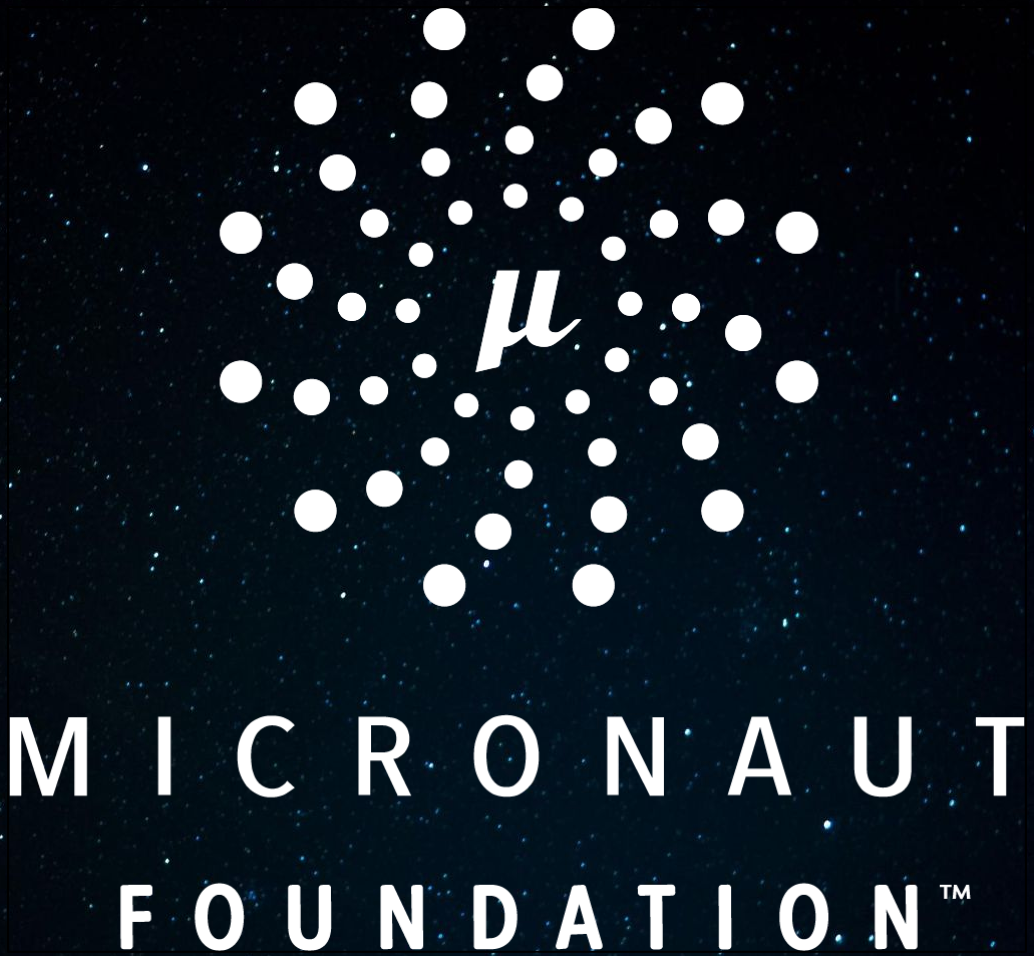


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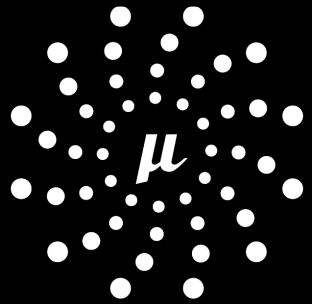

# MICRONAUT FOUNDATION™

- Micronaut Foundation is a not-for-profit organization that exists to support and collectively lead the open source Micronaut® project
- Micronaut Foundation is supported by a Technology Advisory Board that ensures the Framework continues to reflect and serve its diverse and growing user community
- Micronaut Foundation serves to:
    - Ensure technical innovation and advancement of Micronaut as a free and open public use software development framework for a growing global community
    - Evangelize and promote the Micronaut framework as a leading technology in the JVM space
    - Build and support an ecosystem of complementary documentation, functionality, and services.
- For more information on becoming a contributing member and for organizations interested in nominating a representative to the Micronaut Foundation Technical Advisory Board, please contact us at foundation@micronaut.io

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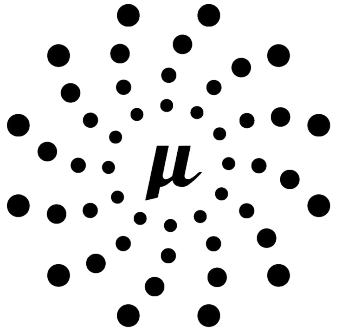
# Micronaut Foundation

As a not-for-profit organization, the Micronaut Foundation relies on the financial support from our amazing community of generous sponsors.

- Corporate sponsorships
- Community sponsorships



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MICHAL RICAN

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# Unity Foundation

unityfoundation.io

Unity Foundation is a non-profit organization focused on leveraging open source and open systems technologies, through a community of partnerships, to uplift and empower underserved communities.

We strive to use technology to build bridges between community members and the organizations that support them.

Our work is guided by our principles of Inclusion, Diversity, Equity, and Action (IDEA).

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# Unity Foundation

unityfoundation.io

We envision a world in which individuals have equitable access to information regardless of social status.

We develop and leverage technology by engaging community partners allowing for the equitable sharing of information thereby supporting improved individual and collective outcomes.

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# University Partnership

**Kate Holdner**, Ph.D., the Faculty Lead of the Computer Science Department at St. Louis University and Founder of their new Open Source Software Center

**Steve Totten**, a Partner at Object Computing, Inc. and Advisor for the Unity Foundation

Exciting partnership between the Unity Foundation, Micronaut Foundation, and St. Louis University students.

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# Student Project

## PI4MICRONAUT

OPEN SOURCE WITH SLU AND THE UNITY FOUNDATION

### OUR MISSION

Our goal is to create a Java library using the Micronaut Framework and Pi4J to streamline the process of creating IoT web applications which utilize hardware connectivity to Raspberry Pi's.

### WHO IS THIS FOR?

We aim to provide Raspberry Pi users with a simpler way to implement their ideas on a Pi. This is useful for companies, hobbyists, and anyone else that wants to build a smart home, alarm system, or automate tasks around a home or facility, just to name a few ideas. The project possibilities are endless.

### PROGRESS

- Built and tested circuits for a slide switch, push button, and rotary encoder
- Incorporated Micronaut, Pi4J, and our library to demonstrate both library and hardware integration
- Going forward, we plan to implement more hardware components, working towards creating a larger project to demonstrate the full functionality of our library

### OUR DEVELOPMENT TEAM

**GREIH M.**
A Master's student studying AI with interests in natural language processing and ML

Github: GreihMurray

**AUSTIN H.**
A senior studying Computer Science with interests in Machine Learning, AI, and FinTech.

Github: austinjhoward

**TRAISON D.**
A senior studying Computer Science with interests in AI, ML, and Computer Vision

Github: traison-diedrich

**SINUO L.**
A senior studying Computer Science with interests in AI and software development.

Github: liusinuo2000

Interested in more? Visit our source code at

HTTPS://GITHUB.COM/OSS-SLU/PI4MICRONAUT

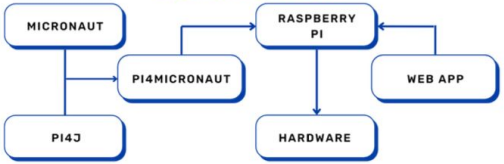
## PI4MICRONAUT

OPEN SOURCE WITH SLU AND THE UNITY FOUNDATION

### DESIGN

Our library combines Micronaut, a framework for creating serverless applications, and Pi4J, a Java library which allows us to communicate with hardware devices connected to the Raspberry Pi. Our library is then able to both send and receive information from the Pi, which is connected directly to our hardware. A web application can then query the Pi for information from the hardware and also send data to the Pi which adapts the functionality of the hardware in real-time.

### PI4MICRONAUT ARCHITECTURE

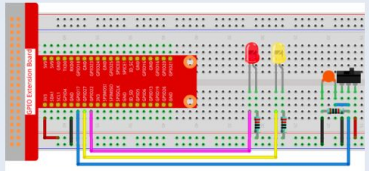



### SLIDE SWITCH CIRCUIT DIAGRAM

This is an example of the diagrams we create for each component that we integrate into the library.

Diagrams like these will be provided within our library documentation. They are useful to anyone using the library, as it provides them with a base circuit that they can build and connect to their Pi's for testing, before moving onto unique circuits of their own.

Provided in the documentation will also be example code to accompany each example build, to test.



Interested in more? Visit our source code at

HTTPS://GITHUB.COM/OSS-SLU/PI4MICRONAUT

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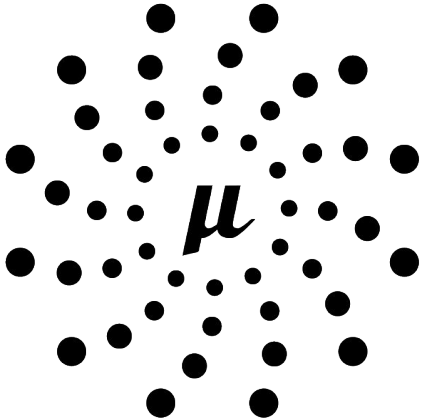
# 🎂 15th Anniversary!



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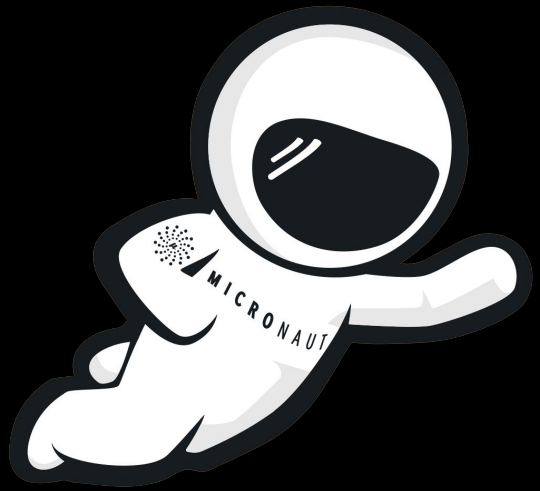
# Let’s Talk Micronaut

- Micronaut 4.0

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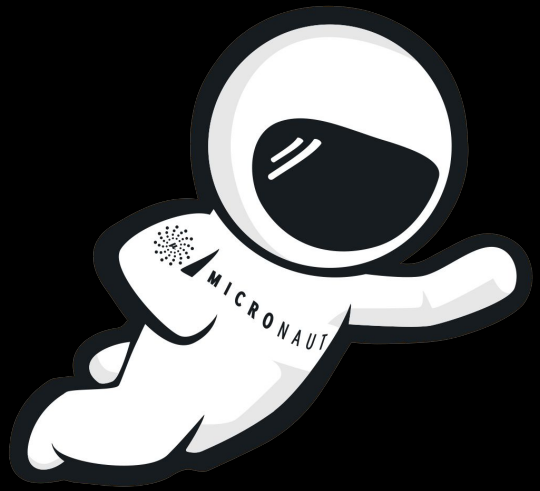
# 4.0.0
# Coming in 2023

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# Java 17 Baseline

Micronaut 3.x keeps supporting Java 8, Java 11

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# Apache Groovy 4.0

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# Kotlin 1.8

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## Kotlin Support

- KAPT Kotlin Annotation Processing
- KSP Kotlin Symbol Processing

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# Virtual Threads Support

```
@Controller("/hello")
class HelloWorldController {

    @ExecuteOn(TaskExecutors.BLOCKING)
    @Produces(MediaType.TEXT_PLAIN)
    @Get("/world")
    String index() {
        return "Hello World";
    }
}
```

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# SLF4J
# 2.0.4

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# LOGBACK
# 1.4.5.

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# Javax -> Jakarta

- jakarta.inject.*
- jakarta.mail.*
- jakarta.annotation.security.*
- jakarta.ws.rs.*

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# Misc Improvements

- Injections of Maps
- Support arbitrary nesting of `@EachProperty` and `@ConfigurationProperties` beans.
- Support for custom HTTP status code.
- `ConversionService` bean
- Performance Improvements

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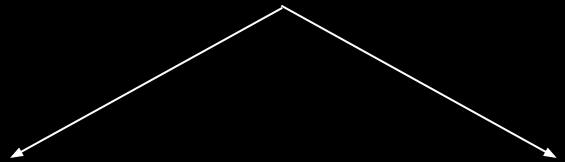
# Micronaut Platform

```
io.micronaut:micronaut-core-bom
io.micronaut.platform:micronaut-platform
```



**Version Catalog** **BOM (Bill of Materials)**

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# Multiple HTTP Client Implementations

- Based on Netty
- Based on Java HTTP Client (JEP 321)

```
<dependency>
   <groupId>io.micronaut</groupId>
   <artifactId>micronaut-http-client-javanet</artifactId>
   <scope>compile</scope>
 </dependency>
```

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# Declarative filter methods

- Easier way to write filters

```
@Singleton
class TracingFilter {
    @RequestFilter
    @ExecuteOn(TaskExecutors.BLOCKING)
    public void filterRequest(HttpRequest<?> request) {
        traceService.trace(request);
    }

    @ResponseFilter
    public void filterResponse(MutableHttpResponse<?> res) {
        res.getHeaders().add("X-Trace-Enabled", "true");
    }
}
```

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# Retry

- @Retryable
- @Recoverable HTTP Clients

```
<dependency>
  <groupId>io.micronaut</groupId>
  <artifactId>micronaut-retry</artifactId>
  <scope>compile</scope>
</dependency>
```

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## Service discovery features

Discovery features in a separate module.

```
<dependency>
    <groupId>io.micronaut</groupId>
    <artifactId>micronaut-discovery</artifactId>
    <scope>compile</scope>
</dependency>
```

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# WebSocket dependency

@ServerWebSocket

```
<dependency>
    <groupId>io.micronaut</groupId>
    <artifactId>micronaut-websocket</artifactId>
    <scope>compile</scope>
</dependency>
```

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# Session Module

```
<dependency>
    <groupId>io.micronaut.session</groupId>
    <artifactId>micronaut-session</artifactId>
    <scope>compile</scope>
</dependency>
```

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# Community Involvement

Micronaut has many contributors across organizations and individuals. Some repositories are community driven.

- More than 350 unique contributors to the core repository alone
- 5.6k stars on GitHub
- Over 2930 people in our Gitter community
- Over 1500 questions in stackoverflow

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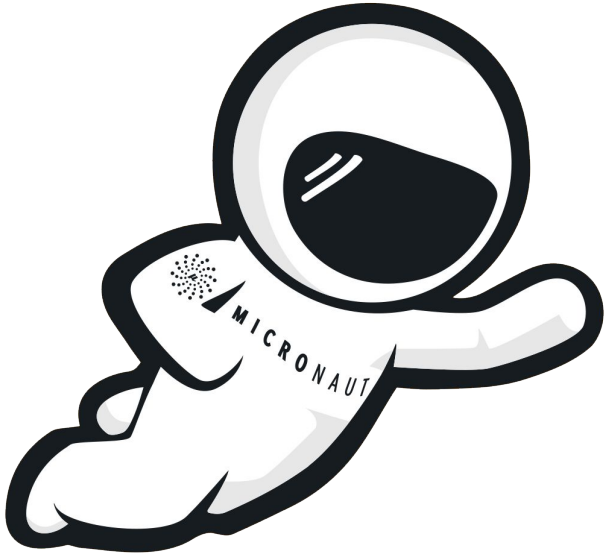
# THANK YOU!
# LET'S STAY CONNECTED

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