

# Justin Malčić

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## Education

**Imperial College London** Computing MSc  
2022–2023 (expected)

**University of Maryland** Linguistics MA  
2019–2022  
4.0 GPA

Research on implications of a natural language phrase structure universal for theories of linearisation, and ways of deriving appropriate constraints on structure building and displacement.

**University of Cambridge** Linguistics BA  
2016–2019

First class (final year and overall)

Starred first class dissertation on order-theoretic theory of phrase structure and displacement in natural language. Won LAGB prize for Outstanding Undergraduate Dissertation in Linguistics.

→ Uses Order Theory to derive properties of phrase structure necessary when linearising structure for pronunciation, and develops a parallel representation of displacement accounting for substantive restrictions.

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## Projects

### **AST-based diffing for Git** (ongoing)

Git extension in Rust to allow diffing using ASTs generated by language servers, resulting in diffs of syntactic structures of files, not lines. Intended to allow automatic conflict resolution in many scenarios currently requiring manual resolution, and automatic correct handling of significant and insignificant whitespace.

### **Implementing an experimental language** (ongoing)

Interpreter in Rust for experimental language inspired by Swift, Rust, and Ruby. Aiming to explore type-driven memory management and concurrency model from Rust, and eventually target LLVM.

### **JS autoloader for Sprockets**

Implemented import map processor for Rails asset pipeline to allow multiple Rails plugins to produce single JS asset manifest. Made improvements to asset autoloader to support plugin path structure.

### **Conference management system**

Full-stack development of conference management system allowing backend management and frontend viewing of conference data. Features pending deployment include basic shared webmail for conference organisers, and accounts for conference delegates. Implemented as multiple Rails plugins extending Spina CMS, with public frontend implementing UI components from GitHub's Primer design system.

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## Other activities

### **Hack Cambridge**

2017–2019

Extended and extensively refactored Express, Sequelize, and Postgres backend of application system and static site of university hackathon to improve maintainability and rationalise dependencies, and redesigned and reimplemented frontend to take advantage of latest CSS features.

### **Indulge Media**

2015

Brief work experience for web agency. Built landing page and fixed browser-specific UI bugs.

### **Miraberis**

2014

Developed simple online shop with cart functionality for Young Enterprise company.

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## Technical skills

### **Fluent**

Ruby, Rust, Swift, JavaScript, Ruby on Rails

### **Familiar**

SQL, Sass, iOS and macOS development, TypeScript

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## Languages

French (C1), German (C1), Italian (C1)

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## Contact

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