**Association for
Computing Machinery**

PAINT '22

Proceedings of the 1st ACM SIGPLAN International Workshop on

Programming Abstractions and Interactive Notations, Tools, and Environments

Edited by:
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and Mauricio Verano Merino**

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Cover photo: "View of Auckland Downtown"
Photographer: Thomas Fritz
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1 ˢᵗ Workshop on Programming Abstractions and Interactive Notations, Tools, and Environments (PAINT-22)

Message From the Chairs

Programming environments that integrate tools, notations, and abstractions into a holistic user experience can provide programmers with better support for what they want to achieve. These programming environments can create an engaging place to do new forms of informational work—resulting in enjoyable, creative, and productive experiences with programming.

In the workshop on *Programming Abstractions and Interactive Notations, Tools, and Environments (PAINT)*, we want to discuss programming environments that support users in working with and creating notations and abstractions that matter to them. We are interested in the relationship between people centric notations and general-purpose programming languages and environments. How do we reflect the various experiences, needs, and priorities of the many people involved in programming—whether they call it that or not?

Areas of interest to PAINT-22 included but were not limited to:

- Design and implementation of program representations and their means of interaction for end-users of all ages

- Design and implementation of visual programming environments

- Block-based environments and their application

- Projectional editors and their application

- Languages and their environments with mixed notations

- Meta tools or tool creation frameworks

- Methods to support working with abstractions, such as example-based programming

- Input and output devices for interacting with programming environments

- Theories of the above

PAINT-22 welcomed two types of contributions:

- *Research papers* should present new, previously unpublished research in one or more of the topics described above.

- *Demos* show early implementations of novel and compelling tools, techniques, devices, and systems.

We received ten submissions. Seven papers were accepted for publication and one for demonstration.

Participants met virtually, authors presented their work in sessions following the Writers' Workshop structure, and everyone engaged in lively discussions.

We would like to thank our program committee, all workshop attendees, and most importantly our authors for their contributions, constructive criticism, hard work, and willingness to share their ideas.

—Tom Beckmann, Robert Hirschfeld, Mauricio Verano Merino, and Juan Pablo Sáenz

Papers, Demos, and Presentations

Blocks, Blocks, and More Blocks-Based Programming
by Ben Selwyn-Smith, Craig Anslow, and Michael Homer

Creating Dynamic Prototypes from Web Page Sketches
by Tommaso Calò and Luigi De Russis

Domain-Specific Visual Language for Data Engineering Quality
by Alexis De Meo and Michael Homer

*Integration Testing can be Reliable and Low-effort in a Projectional IDE
Through Snapshots (DEMO)*
by Bastian Kruck

Interaction vs. Abstraction: Managed Copy and Paste
by Jonathan Edwards and Tomas Petricek

Interleaved 2D Notation for Concatenative Programming
by Michael Homer

Suppose You Had Blocks within a Notebook
by Mauricio Verano Merino, Juan Pablo Sáenz, and Ana María Díaz Castillo

Toward a VR-Native Live Programming Environment
by Leonard Geier, Clemens Tiedt, Tom Beckmann, Marcel Taeumel,
and Robert Hirschfeld

Program Committee

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https://2022.splashcon.org/home/paint-2022/