Harvard John A. Paulson
School of Engineering
and Applied Sciences

PL/HCI Seminar (252R/279R)

How to Present a Paper in 279r

Teaching by Demonstration

Resources

1. Design Arguments handout
2. “8-pack” handout (to be posted)
3. Your peers’ questions in the forum

Design Argument #1

Evidence

How do you know?

Need

Need Thesis

Stakeholders + Domain Person **P** [in setting **S**]

Core tension wants to achieve goal **G** but obstacles $\mathbf{O}_{1\text{-}N}$ get in the way.

Evidence

How do existing approaches fail?

Any solution also has to:
satisfy constraints $\mathbf{X}_{1\text{-}N}$,
minimize costs $\mathbf{Y}_{1\text{-}N}$,
and avoid obstacles $\mathbf{Z}_{1\text{-}N}$.

Axioms As designers, we bring the following principles and constraints $\mathbf{A}_{1\text{-}N}$.

Approach Thesis

Our approach, ______________,
has characteristics $\mathbf{C}_{1\text{-}N}$
that help stakeholders achieve their goal **G** while avoiding obstacles $\mathbf{O}_{1\text{-}N}$

Evidence

What characteristics have you borrowed from solutions that succeeded in analogous settings?

What differentiates your approach from previous solutions that failed?

How have stakeholders responded to/been able to use your approach?

Steps

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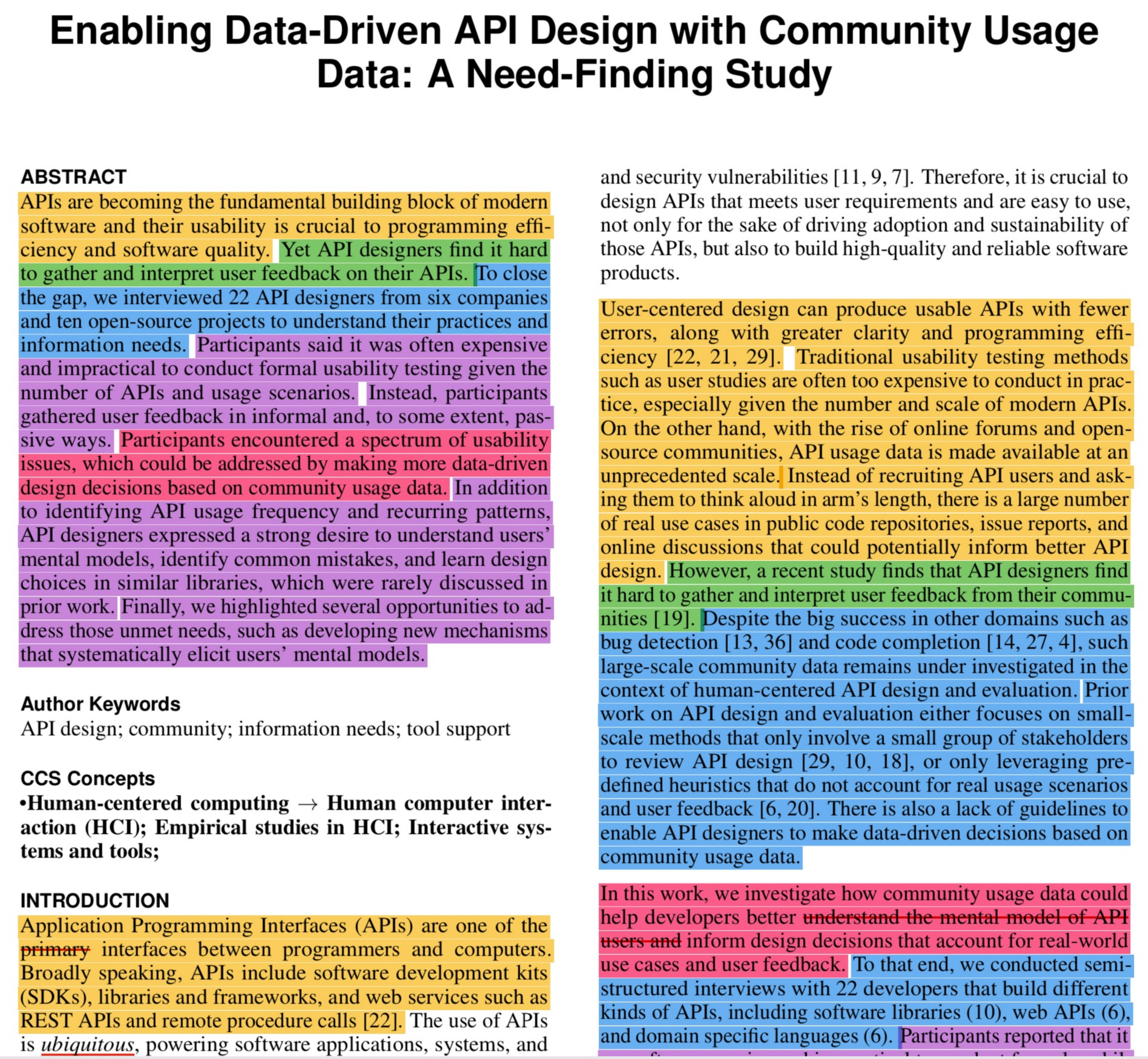

Enabling Data-Driven API Design with Community Usage Data: A Need-Finding Study

ABSTRACT

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Author Keywords

API design; community; information needs; tool support

CCS Concepts

•**Human-centered computing → Human computer interaction (HCI); Empirical studies in HCI; Interactive systems and tools;**

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Application Programming Interfaces (APIs) are one of the ~~primary~~ interfaces between programmers and computers. Broadly speaking, APIs include software development kits (SDKs), libraries and frameworks, and web services such as REST APIs and remote procedure calls [22]. The use of APIs is *ubiquitous*, powering software applications, systems, and security vulnerabilities [11, 9, 7]. Therefore, it is crucial to design APIs that meets user requirements and are easy to use, not only for the sake of driving adoption and sustainability of those APIs, but also to build high-quality and reliable software products.

User-centered design can produce usable APIs with fewer errors, along with greater clarity and programming efficiency [22, 21, 29]. Traditional usability testing methods such as user studies are often too expensive to conduct in practice, especially given the number and scale of modern APIs. On the other hand, with the rise of online forums and open-source communities, API usage data is made available at an unprecedented scale. Instead of recruiting API users and asking them to think aloud in arm's length, there is a large number of real use cases in public code repositories, issue reports, and online discussions that could potentially inform better API design. However, a recent study finds that API designers find it hard to gather and interpret user feedback from their communities [19]. Despite the big success in other domains such as bug detection [13, 36] and code completion [14, 27, 4], such large-scale community data remains under investigated in the context of human-centered API design and evaluation. Prior work on API design and evaluation either focuses on small-scale methods that only involve a small group of stakeholders to review API design [29, 10, 18], or only leveraging predefined heuristics that do not account for real usage scenarios and user feedback [6, 20]. There is also a lack of guidelines to enable API designers to make data-driven decisions based on community usage data.

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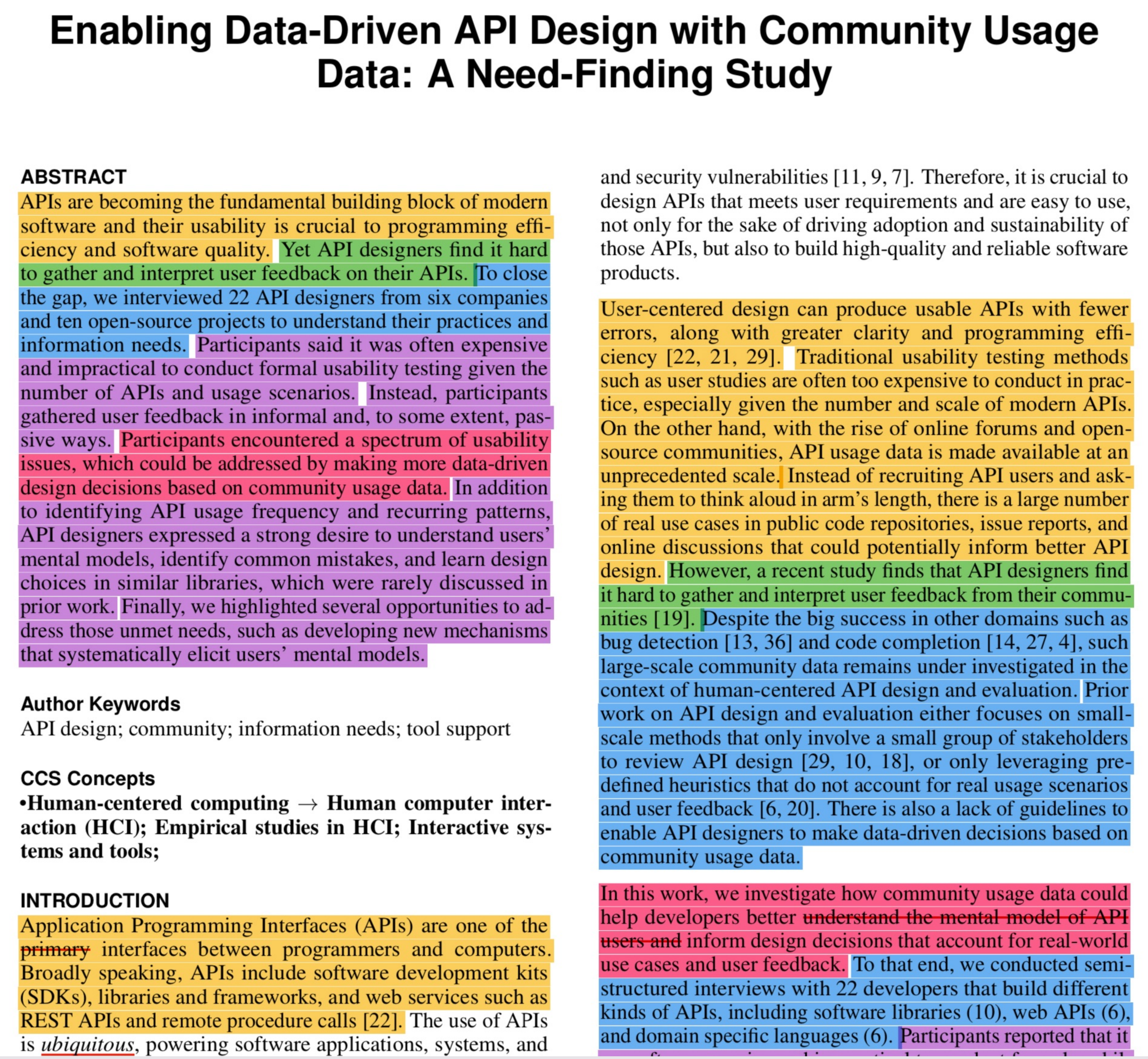

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8-pack

practical

practical problem		**design arguments**	**system model**	**findings**
[**SETTING**] **SETTING:** **CHALLENGES:** **CONSEQUENCE:**	[**SETTING**] **SETTING:** **CHALLENGES:** **CONSEQUENCE:**	To do [what we want to do] we introduce [what we've built] [which allows]		

research

class of problems	**conceptual approach**	**technical approach**	**takeaways**
SETTING: **CHALLENGES:** **CONSEQUENCES:**			

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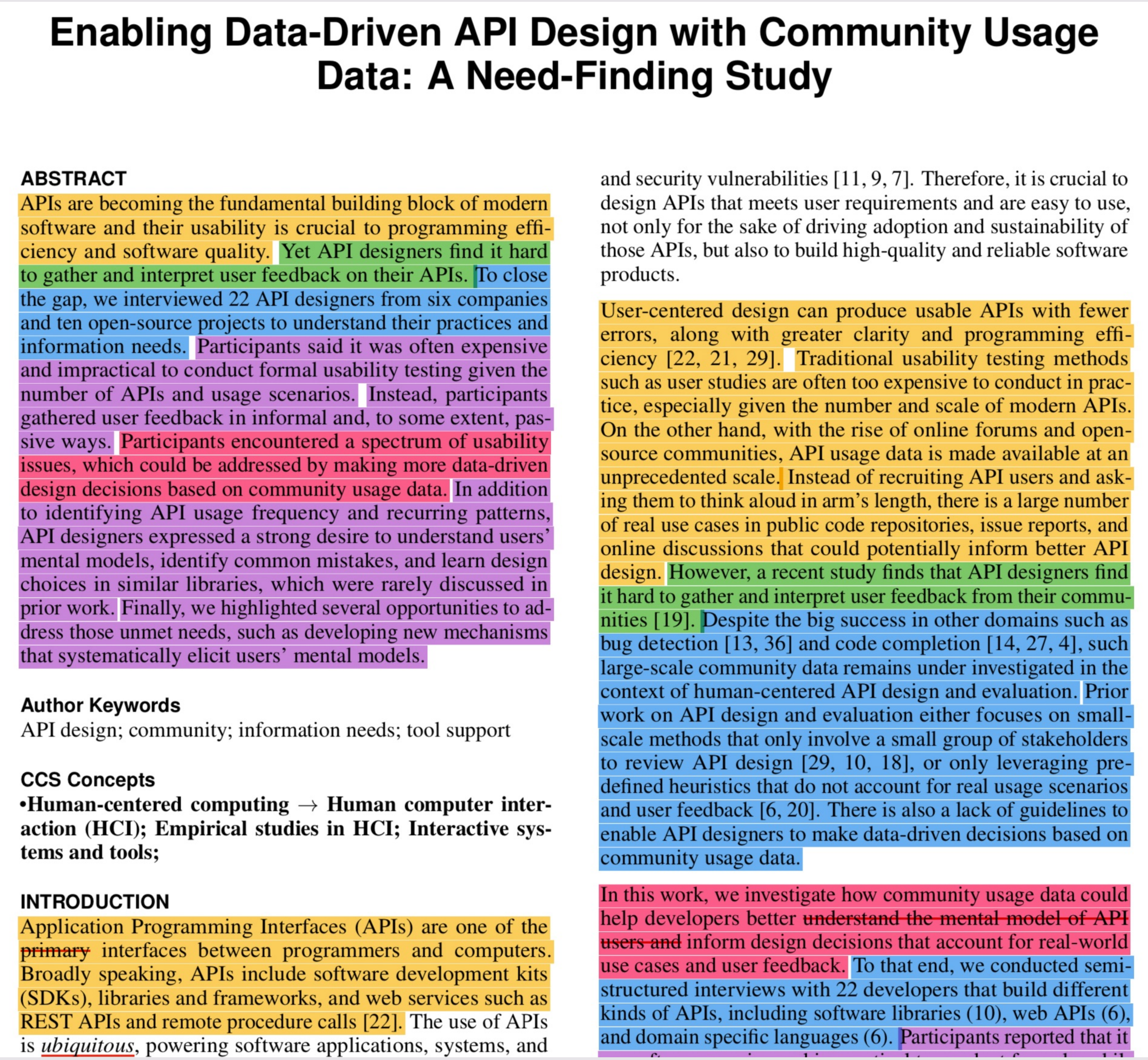

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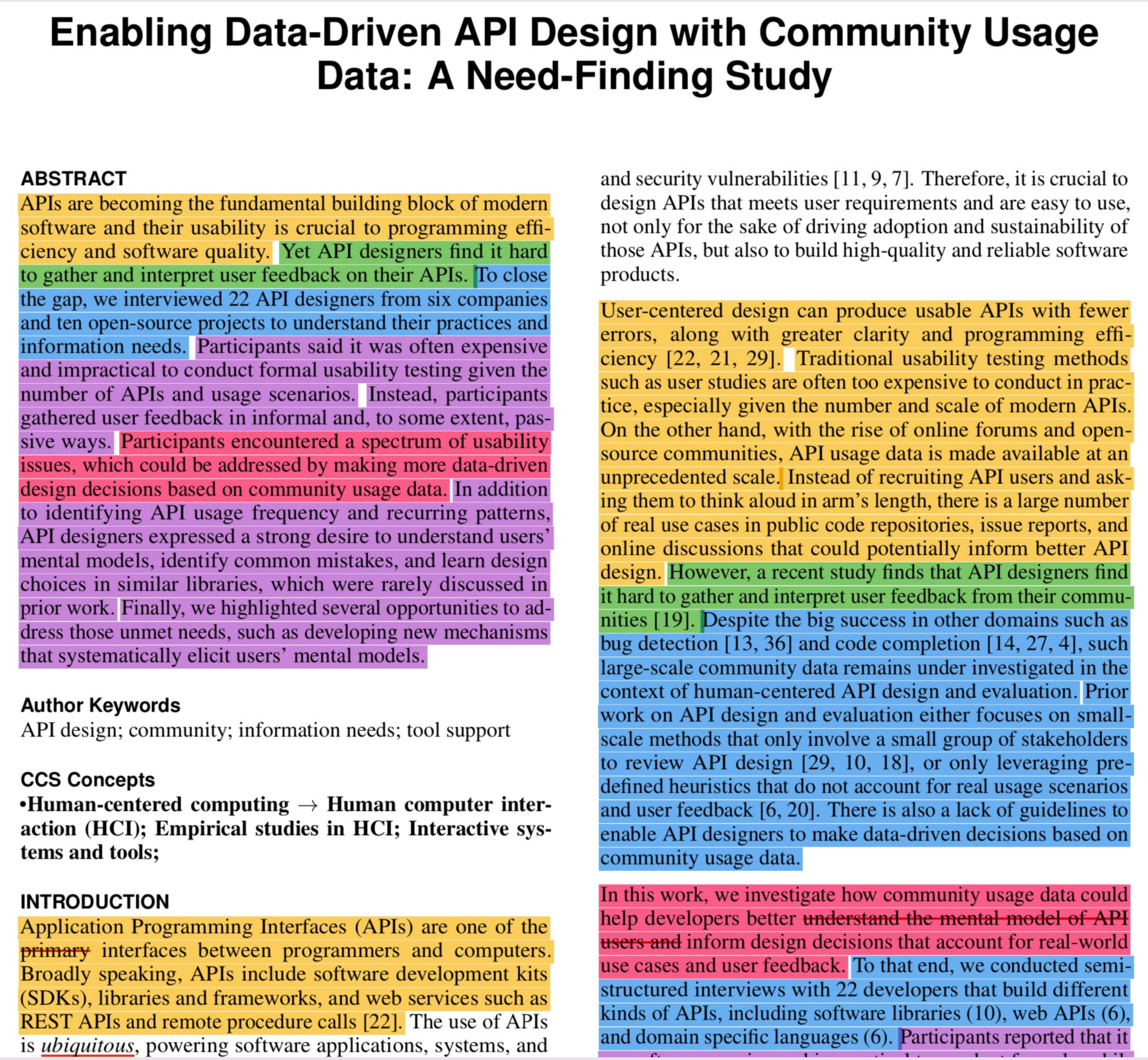

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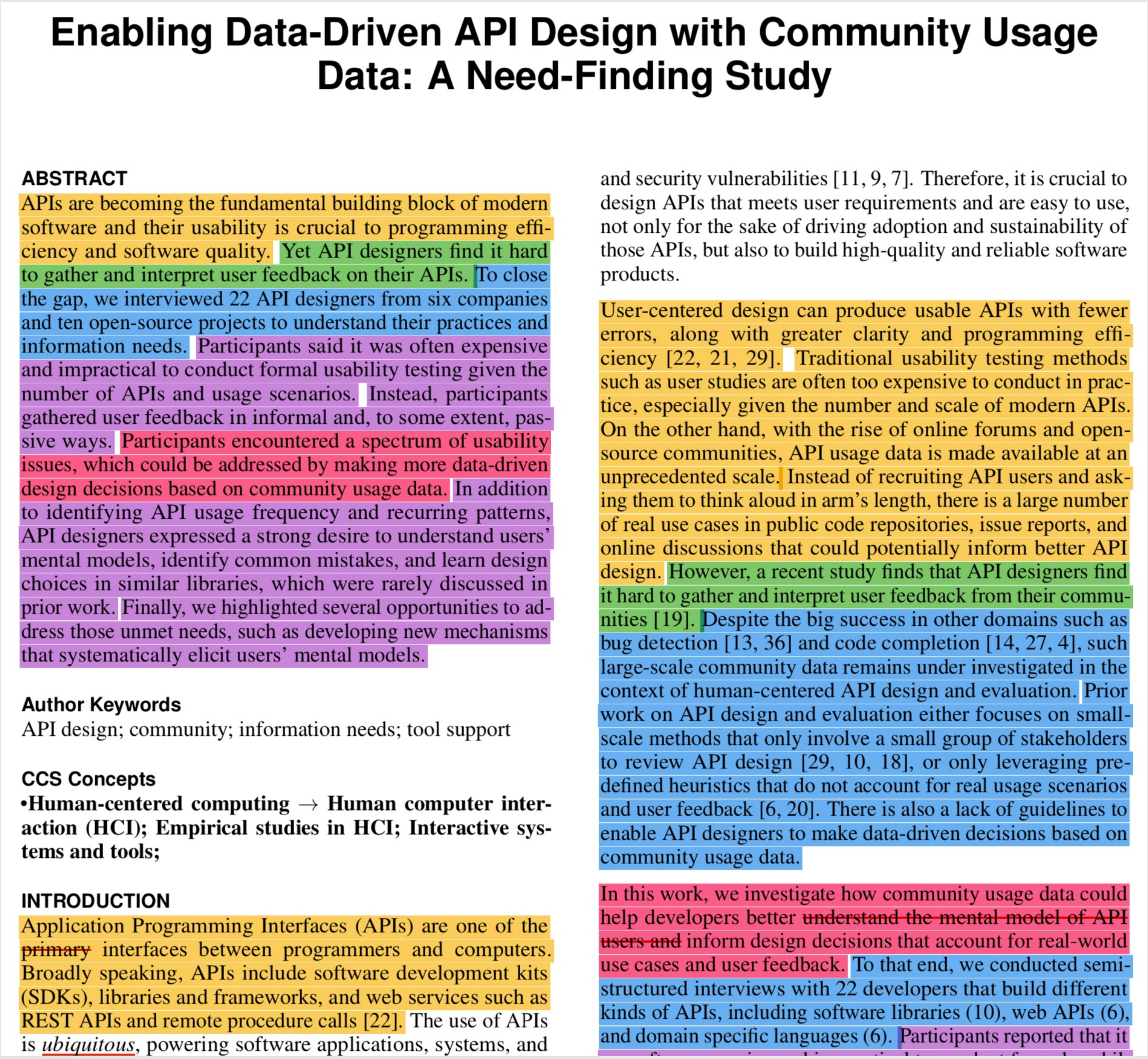

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