“We Are Developers!” is a special supplement in the subscribed circulation of

Print + Digital

March, June & November 2022
We Are Developers! 2022

We Are Developers! – The magazine for developers and those who want to become one.
Reach a top target group of almost 230,000 Heise subscribers with this combination (c’t and iX Magazin). In addition to the print edition, the magazine is distributed as a digital edition to a large number of young developers (free and interactive PDF version).
The digital edition is advertised via heise online, WeAreDevelopers GmbH and additional promotional activities. Thus 30,000 registered users of WeAreDevelopers get access to the digital version of the magazine, in addition 90,000 WeAreDevelopers followers are informed about the issue (incl. links) and 12,000 subscribers are made aware of the magazine directly via newsletter. Issue 2 / 2022 will be published before the WeAreDevelopers (WAD) World Congress (15 / 16 June 2022) and will be published in English to additionally address the participants of the WAD World Congress. Furthermore, the e-magazine will be distributed to the developer community worldwide for the first time!
c’t, iX and heise Developer have the readers and users you need - IT and software professionals, IT engineers, innovation managers - and a broad readership interested in IT and technology. The development potential slumbers within them. Awaken their developer genes from its slumber. WeAreDeveloper provides the perfect developer platform.
We look forward to having you join us!

Tarik El-Badaoui
Sales Director iX

Simon Tiebel
Sales Director c’t

Our readers - your target group

Software Developer
51% of c’t readers work in IT/software development.
Every third person is a software developer, every fourth project manager.*
The typical iX reader works in IT/software development: 76%. And works as a software developer: 41%.

Practice / Knowledge / Learning
IT/software development: 42% of c’t readers read c’t to acquire practical knowledge.*
80% read topics on software development in the iX.

87% of c’t readers are interested in professional development*.
For 92% of iX readers, continuing education is generally relevant.

“’I will be changing jobs or professions in the next 12 months”, say 86,000 c’t readers, 42,000 c’t readers will complete a course of study, an apprenticeship and enter a profession.

c’t has a reach of 922,000 readers per issue!

85% of iX readers find information relevant to their profession in iX.
c’t contains information of interest to my profession, say 68% of c’t readers.*

Source: c’t - AWA 2021, *c’t readership survey 2019 n=1,740, iX readership survey 2019 n=1,018
The announcement news for the magazine on heise Developer and iX.de have the following coverage:

**heise Developer**

**User traffic – September 2021:** 933,527 Page Impressions (Source: IVW)

**Coverage:** 177,000 Unique User (Source: agof digital facts 2021 / July - Sept.)

**Target group:**
- Software developers, architects and engineers
- Project and team managers
- Software and IT consultants

**heise Developer Online Channel:**

- **heise Developer Newsletter:** 4,900 Subscribers
- **heise Developer Twitter Channel:** 35,212 Follower

**iX**

**User traffic – September 2021:** 1,105,638 Page Impressions (Source: IVW)

**Coverage:** 197,000 Unique User (Source: agof digital facts 2021 / July - Sept.)

**Target group:**
- ICT Professionals
- IT and system engineers
- IT security officers
- Network managers and many more

**iX Online Channel:**

- **iX Twitter Channel:** 27,217 Follower
- **iX.de Newsletter:** 5,000 Subscribers

In addition, the e-magazine is also distributed via the channels of our partner WeAreDevelopers (WAD):

**WAD Social media channels:** around 130,000 Subscribers

**WAD Newsletter:** > 50,000 Recipients – multiple times

**WAD Social Media Boost**

The two e-magazine issues 2021 were downloaded digitally 23,187 times at WAD. (Total period 2021)
**The topics and authors of the March issue**

**Machine learning, data science, autonomous driving and simulation tests, future mobility, cloud security, JavaScript framework, CSS, European technology sovereignty, AI: Fourth industrial revolution/multimodal revolution**

**On the way to autonomous driving: Simulation-based testing with V2X communication**

Tomorrow’s mobility is characterized by increasing automation and networking of vehicles. Whether on the rails, on the roads or in the air - current research is focusing on assistance systems that are becoming more reliable and are being applied both in the area of traffic safety and in infotainment. A key technology for increasing safety and efficiency in traffic is vehicle-to-anything communication, or V2X communication for short. As the name suggests, a vehicle communicates with everything in its environment. How is vehicle-to-vehicle communication tested? A workshop insight at the German Aerospace Center in Braunschweig.

**Katharina Hartmann** works at the German Aerospace Center in Braunschweig. At the Institute of Transportation Systems Engineering, she is involved in the design and development of tests for communication systems in road and rail transportation. Her current focus is on V2X communication, which was also part of her bachelor thesis.

**“It’s the dataset, stupid!” - Why machines don’t (yet) make better decisions**

What is a good data set? For machine learning, this is fundamental. Especially for the question of why machines don’t (yet) make better decisions. Autonomous vehicles that stop in a sleet shower. Voice-controlled smart-home assistants that only understand male voices. Despite a surge in innovation and refined technology, the machine learning (ML) industry faces challenges that slow it down unfamiliar. Much has been written in this context about what bad data sets can do to machine learning. Daniel Kondermann specializes in quality assurance of datasets in computer vision and has developed a system to generate good datasets. In the interview, he also explains how this system could contribute to achieving an ethically responsible, safer and transparent application of AI/ML systems. To understand the significance of this, it’s important to first take a closer look at what is currently slowing down machine learning.

**Thordis Taag**: freelance copywriter and editor; professional experience in business and politics in the field of press relations; MA in political science and ethnology - in dialog with Dr. Daniel Kondermann: Managing Director at Quality Match; private lecturer and researcher in computer vision at the University of Heidelberg. Kondermann and his team support companies in asking the right questions to find good examples. The goal is to make the data set as representative, accurate and sophisticated as possible - RAD - by filtering out errors, inconsistencies and ambiguities.

**Technology Sovereignty for Europe: Machines with world knowledge, and what’s already on the tarmac today**

“My hope, my naive hope, is that maybe we can combine European technology sovereignty with digitization. That would be something. And my hope would be that we can not only digitize the dusty administration, but also use this money in such a way that we can do our own AI research here in Europe.”

“Microsoft has, after all, bought the license for GPT-3 exclusively. For a billion. And Microsoft is just now bringing that to the European market. In the past, we as Europe, as Germany, have often let ourselves be outmaneuvered a bit ... We’ve always had technology leadership, or at least been at the forefront of some technologies, and then given up this lead or at least this competence.”

“I think we need two things. One is that we need the technical competence to be able to design ourselves. Because if we’re not capable of taking action, we can postulate as many things as we want, we won’t be able to do it in the end. And the other is that we need value creation in order to have the powder for it, i.e. in order to address the social, cultural things, we need the resources for it somewhere. And if we let all the value creation be siphoned off by the Americans, if all the value creation goes to the shareholders of Microsoft and OpenAI, then we’re missing that here as a society.”

“Every possible future scenario is wild.” – Jonas Andrilis

**Silke Hahn**, Editor at heise Developer - conversation with former Apple manager and machine learner Jonas Andrilis (CEO Aleph Alpha) and with Prof. Kristian Kersting, AI researcher TU Darmstadt/Hessian.

**The next evolutionary step in JavaScript: TailwindCSS offers utility-first instead of obscure class names**

Since then, the utility-first CSS framework Tailwind CSS has particularly impressed with its philosophy, modern and simple syntax, and extensibility. However, it is problematic that with increasing complexity, the Tailwind configuration file usually grows similarly strongly, so that the intended simplicity is somewhat dampened. This is because Tailwind also offers configurable variants for each of its countless classes; but the classes as such can also be configured, for example with their own color names.

The solution is presented by the Tailwind developers themselves: With a so-called just-in-time compiler, the CSS code for the classes used in the HTML is generated automatically - without the need for much configuration and without any real restriction of functionality. For example, the variants for screen sizes, dark mode or hover can be combined as desired (button class="md:dark:disabled:focus:hover:bg-gray-400"); even sizes, colors and co are no longer restricted to fixed, named categories, but can be specified freely (<img class="absolute w-[762px] h-[918px] src="/crazy-background-image.png"/>). It works like the logical extension of CSS purging: instead of removing unused classes from the CSS only at the end, Tailwind JIT doesn’t let them arise in the first place.
**Timo Zander** is a dual student of Applied Mathematics and Computer Science and works as an app developer. He is interested in open source, the JavaScript universe and emerging technologies.

**Ethical Algorithms: AI testing under scrutiny, an MLOps perspective.**

Classic software testing cannot be easily transferred to AI. Internal audits are one way to check it for ethical principles. The principles converging in AI ethics are transparency, justice and fairness, non-harmful responsibility and data protection. In this way, it is comparable to medical ethics, because the principles of respect for autonomy, nonmaleficence, beneficence, and justice enshrined there coincide with the ethical requirements of AI systems. It is therefore natural to look to areas with a tradition of verifiable processes that may not operate flawlessly, but without which safety standards cannot be realized. These include safety-critical and regulated industries such as medicine, but also aerospace or finance.

**Isabel Bär** studies at the Hasso Plattner Institute in the master’s program Data Engineering and is a working student at INNOQ. In her studies, she deals with the collection, linking, and analysis of big data; in her work as a working student, her focus is on topics related to the use of AI (fairness, interpretability, security, and data protection). Her current focus is on MLOps.

**Relational Learning: The blind spot of current deep learning algorithms**

In our project, feature engineering turned out to be a very labor-intensive and time-consuming problem. Moreover, none of the known machine learning frameworks (Tensorflow, PyTorch, Scikit Learn, etc.) has an algorithmic solution for this problem. Nor could any commercial AutoML solution (Google AutoML Tables, AWS SageMaker, H20, etc.) help automate feature engineering on relational data. Most of our project day was spent on feature engineering, the preparation of relational data for use in machine learning models. To solve this problem, we have developed algorithms over the past four years that are capable of learning from relational data structures in order to process this data automatically for machine learning algorithms. After a two-year beta phase, we brought our feature learning algorithms to market within our own machine learning framework. For manual feature engineering, data scientists previously needed thousands of lines of SQL code (or equivalent) for many merge and aggregation operations on relational data. Using feature learning algorithms and a few lines of Python code, it is now possible to automate this task. As we were able to show in our public benchmark notebooks, the use of getML leads to a significantly increased prediction quality and delivers up to 179x speedup compared to brute-force feature engineering algorithms from Facebook, BlueYonder or AlterYX.

All benchmarks, as well as more code samples, are published on Github in our repo.

- What is the content of the deep learning hype? Are feature learning algorithms another black box system? What is the reason for the sluggish adaptation of AI in companies? The author explores some possible solutions in his article.
- Feature learning with getML
- Algorithms and code example/s from practice

**Alexander Uhlig** With the Leipzig-based startup getML, we develop algorithms for automated feature engineering on relational data. Before founding our company in 2017, I researched and worked as a Data Scientist at Volkswagen DataLab. Here I developed predictive analytics models on relational data and time series.

**Book layout with HTML and CSS: Automated PDF creation with HTML and the CSS paged media module**

In many e-government and business applications, there is a requirement to make data available as PDF or to create PDF documents for correspondence. There are various options for implementing this. Libraries such as iText or PDFBox are often used. With iText (https://itextpdf.com) there is the problem that from version 5.0 the license was changed to AGPL and the use of a new iText version is only possible if the own source code is disclosed. This circumstance means that many projects which are not open source or do not use a paid-for version are using an old iText library. Apache PDFBox (https://pdfbox.apache.org/) is an open source library in Java from the Apache Software Foundation for creating and editing PDF documents. Layout control is done in Java code with imperative statements. This solution can be adapted and configured very individually to the requirements and already existing tools as well as processing processes of your projects. PrintCSS (CSS Paged Media Module) is an exciting technology and can be used in many ways. Starting with the creation of tickets for PDF shipping to the automation of print data creation for publishers. A disadvantage in many areas - that there is no WYSIWYG editor there - but especially for developers to create reports this is not necessary and often corresponds more to the way software developers work.

**Bernhard Jungwirth** works as a software developer at the Federal Environment Agency in Vienna and in his spare time he runs the Flexlex project as a freelancer, a web application for creating PDFs with legal texts that users can compile themselves and have printed in book form (in Austria all legal texts are available as open source files).
### Place your services and offers for the target group

- as advertisement
- as advertorial
- as personal image advertisement
- as classic job advertisement

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*Advertorial (text, image, logo), number of characters on request

** Trim allowance:
4 mm head, 4 mm gutter
3 mm face- and 3 mm foot

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**Print run:**
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Contact

Michael Hanke  
**Group Sales Director**  
Phone: +49 [0] 511 53 52 167  
michael.hanke@heise.de

Ellrik Freienberg  
**Account Manager**  
Phone: +49 [0] 511 53 52 891  
ellrik.freienberg@heise.de

Bastian Laudien  
**Sales Director Digital**  
Phone: +49 [0] 511 5352-743  
bastian.laudien@heise.de

Tarik El-Badaoui  
**Sales Director iX + Developer Conferences**  
Phone: +49 [0] 511 53 52 395  
tarik.el-badaoui@heise.de

Ellrik Freienberg  
**Account Manager**  
Phone: +49 [0] 511 53 52 891  
ellrik.freienberg@heise.de

Roberto Giordano  
**Senior Account Manager**  
Phone: +49 [0] 511 5352-817  
roberto.giordano@heise.de

Corven Krenke  
**Junior Account Manager**  
Phone: +49 [0] 511 5352-595  
corven.krenke@heise.de