universität innsbruck

Introduction to Scientific Working

Aart Middeldorp

Outline

1. **TikZ**
2. **Conferences**
3. **LaTeX**
4. **Scheduling**
5. **Homework**

Keywords

acknowledgement · awards · beamer · bibliography · CORE ranking · DBLP · conference · editorial board · generative AI · Google Scholar · h–index · impact factor · journal · LaTeX · LIPIcs · LNCS · open access · plagiarism · presentation · program committee · rebuttal · review · submission · TikZ · workshop · ···

Types of Scientific Works

- seminar report
- bachelor thesis
- master thesis
- PhD thesis
- habilitation thesis
- workshop paper
- conference paper
- journal article
- book chapter
- book

Outline

```
\usetikzlibrary{arrows.meta}
\draw [thick,-{Stealth}] (0,0) -- ++(2,0);
```

Arrow Tips

	Classical TikZ Rightarrow		Computer Modern Rightarrow
	Implies		Hooks
	Arc Barb		Parenthesis
	Bar		Straight Barb
	Bracket		Tee Barb
	Circle		Circle[open]
	Diamond		Diamond[open]
	Ellipse		Ellipse[open]
	Kite		Kite[open]

```
\usetikzlibrary{arrows.meta}
\draw [thick,-{Stealth}] (0,0) -- ++(2,0);
```

Arrow Tips (cont'd)

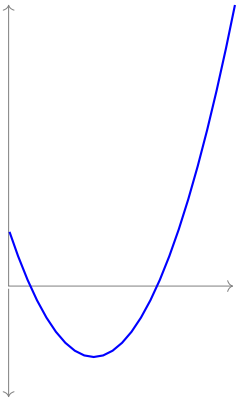
 Latex	 Latex[open]
 Latex[round]	 Latex[round,open]
 Rectangle	 Rectangle[open]
 Square	 Square[open]
 Stealth	 Stealth[open]
 Stealth[round]	 Stealth[round,open]
 Triangle	 Triangle[open]
 Turned Square	 Turned Square[open]

src

Plots

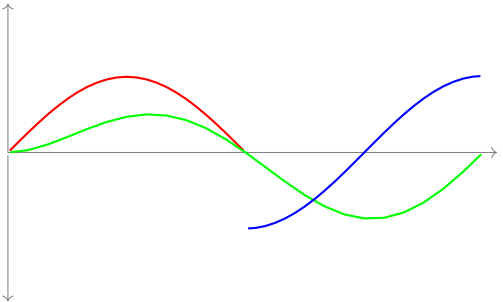
```
\draw [help lines,<->] (0,5) - (0,0) - (4,0);
\draw [help lines, ->] (0,0) - (0,-2);
\draw [blue, thick, domain=0:4] plot (\x, {\x*\x-3*\x+1});
```

src



$x^2 - 3x + 1$

```
\draw [help lines,<->] (0,2) - (0,0) - (6.5,0);
\draw [help lines, ->] (0,0) - (0,-2);
\draw [red, thick, domain=0:pi]     plot (\x,{sin(\x r)});
\draw [green, thick, domain=0:2*pi] plot (\x,{sin(\x r)*ln(\x+1))/2});
\draw [blue, thick, domain=pi:2*pi] plot (\x,{cos(\x r)*exp(\x/exp(2*pi))});
```
src



Outline

- location
- call for papers
- deadlines
- program committee
- invited speakers
- accepted papers
- rebuttal
- publication
- ranking
- awards

Federated Logic Conference (FLoC) 2026

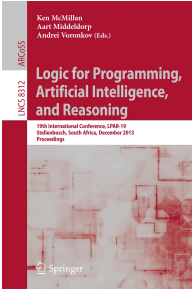
- 32nd International Conference on Principles and Practice of Constraint Programming — CP
- 11th International Conference on Formal Structures for Computation and Deduction — FSCD
- 42nd International Conference on Logic Programming — ICLP
- 23rd International Conference on Principles of Knowledge Representation and Reasoning — KR
- 41st Annual Symposium on Logic in Computer Science — LICS
- 29th International Conference on Theory and Applications of Satisfiability Testing — SAT
- 38th International Conference on Computer Aided Verification — CAV
- 39th IEEE Computer Security Foundations Symposium — CSF
- 13th International Joint Conference on Automated Reasoning — IJCAR
- 17th International Conference on Interactive Theorem Proving — ITP

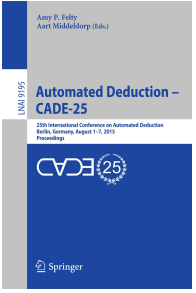
Awards

- best paper
- best student paper
- distinguished paper award
- test–of–time award
- . . .
- best reviewer award
- . . .
- Turing award
- . . .
- other awards in computer science

Publication

- ACM
- IEEE
- Lecture Notes in Computer Science (LNCS)
- Leibniz International Proceedings in Informatics (LIPIcs)





SCHLOSS DAGSTUHL
Leibniz-Zentrum für Informatik

Outline

Exemplary Bachelor Theses

▸ Number Link	Benjamin Rupprechter	2009
▸ Kurodoko	Johannes Koch	2020
▸ Five Cells	Diana Gründlinger	2023

Common Ingredients

- appendices
- bibliography
- chapters / sections
- figures
- footnotes
- formulas
- hyper links
- lists
- plots
- program code
- screen shots
- table of contents
- tables

```
Some dummy\footnote{This is the first footnote.} text. Footnote marks
should not be placed before\footnotemark[1], like here, but after
punctuation marks, like this.\footnote{This is the second footnote.}
```
src

- footmisc package for customizing footnotes

```
\usepackage[perpage,para,symbol]{footmisc}
Some dummy\footnote{This is the first footnote.} text. Footnote marks
should not be placed before\footnotemark[1], like here, but after
punctuation marks, like this.\footnote{This is the second footnote.}
And here is a third\footnote{This is the third footnote.} one.
```
src

Topics

- Greek alphabet

\alpha	α	\eta	η	\nu	ν	\tau	τ
\beta	β	\theta	θ	\xi	ξ	\upsilon	υ
\gamma	γ	\iota	ι	o	o	\phi	ϕ
\delta	δ	\kappa	κ	\pi	π	\chi	χ
\epsilon	ϵ	\lambda	λ	\rho	ρ	\psi	ψ
\zeta	ζ	\mu	μ	\sigma	σ	\omega	ω
\varepsilon	ε	\vartheta	ϑ	\varsigma	ς	\varphi	φ
\Gamma	Γ	\Theta	Θ	\Xi	Ξ	\Upsilon	Υ
\Delta	Δ	\Lambda	Λ	\Pi	Π	\Psi	Ψ
				\Sigma	Σ	\Omega	Ω

```
\usepackage{amsmath}

\begin{multline}
\sum_{i=1}^15 a_{i+1}b_i^2 = a_2b_1^2 + a_3b_2^2 + a_4b_3^2 + a_5b_4^2 + a_6b_5^2 \\
+ a_7b_6^2 + a_8b_7^2 + a_9b_8^2 + a_{10}b_9^2 + a_{11}b_{10}^2 \\
+ a_{12}b_{11}^2 + a_{13}b_{12}^2 + a_{14}b_{13}^2 + a_{15}b_{14}^2 + a_{16}b_{15}^2
\end{multline}

\begin{align}
f(x,y,z) &= \lnot (x \to y) \lor z & h(x,y) &= x \lor \lnot y \\
g(x,y) &= x \to x \land y & i(x) &= 0
\end{align}

\begin{align}
f(x,y,z) &= \lnot (x \to y) \lor z & h(x,y) &= x \lor \lnot y
\intertext{and}
g(x,y) &= x \to x \land y & i(x) &= 0
\end{align}
```

src

Outline

Topics

1 chemmacros	5 listings	10 pgfplots	14 tikzmark
2 chessboard	6 mathtools	11 postit	15 tikzpeople
3 cleveref	8 MusiXTeX	12 qrcodetikz	16 tkz-berge
4 enumitem	9 pgf–go	13 TangramTikz	17 todonotes

Assignment

1 Bacher Martin	6 Oppermann Linda	13 Paganini Adriano
2 Weilbacher Jannick	8 Beier Tom Simon	14 Hölzl Sebastian
3 Darsel Esma	8 Küllmar Jan Peter	15 Krause Jakob Moritz
3 Fitz Julia	9 Albrecht Odin	16 Musch Eric Edgar Friedrich
4 Bekhtari Salma	10 Kerber Thomas Martin	17 Freiermuth Marie
4 Ristova Kirjana	11 Ilic Ilija	17 Leinfelder Matthias Christian
5 Krumholz Maya	11 Khakhlou Pavel	
5 Sagerer Marie	12 Ciech Dominique Manuel	

Scheduling

▸ June 11	5	4	11	8	17	9
▸ June 18	10	16	13	14	15	6
▸ June 25	3	12	1	2		

Instructions

- 15 minute presentation using slides with beamer package
- 5 to 10 page report in LIPIcs format (deadline: 10 am on July 3)
- content:
  - functionality
  - examples
  - options
  - ...

Outline

Homework Exercises for April 23

1. Which awards are presented by the conferences that are part of FLoC 2026? 1
2. Prepare a five page conference paper in both the LIPIcs and LNCS formats. Feel free to use lipsum or blindtext package to generate dummy content. 3
3. Use TikZ to typeset the following diagram: 1