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Forschungsgebiete

- Mobile und Echtzeitsysteme
 - (RT)Android ([Projektwiki](#))
 - Java Real-Time Systems
- Software-SPS
 - Ausführung und Simulation von SPS-Programmen auf RTAndroid
 - Sprachen des IEC-61131

Offene Abschlussarbeiten

- Auf Anfrage

Betreute Abschlussarbeiten

- Anforderungsanalyse und prototypische Umsetzung einer Entwicklungsumgebung für Structured Text auf RTAndroid
- Flexible Konfiguration eines mikrocontrollerbasierten Feldgeräteadapters für RTAndroid
- Ausführung und Simulation von SPS-Programmen auf RTAndroid
- Stabilisierung und Test von Real-Time Android
- Steuerung einer Fertigungsanlage mit RTAndroid
- Entwicklung einer Real-Time Activity für die Android Plattform

Lehre

Semester	Titel	Art
Sommersemester 15	Dienste in der Industrie 4.0	S
Wintersemester 14/15	Einführung in die Technische Informatik	V/Ü
	Ausgesuchte Themen zur Eingebetteten Software	S

Sommersemester 14	Entwicklung NXT gesteuerter LEGO-Fahrzeuge mit Java	P
Wintersemester 13/14	Einführung in die Technische Informatik	V/Ü
Sommersemester 13	Entwicklung NXT gesteuerter LEGO-Fahrzeuge mit Java	P
	Praktikum Systemprogrammierung	P
Wintersemester 12/13	Einführung in die Technische Informatik	V/Ü
Sommersemester 12	Entwicklung NXT gesteuerter LEGO-Fahrzeuge mit Java	P
	Praktikum Systemprogrammierung	P
Wintersemester 11/12	Einführung in die Technische Informatik	V/Ü

Sprechstunde

Nach Vereinbarung

Veröffentlichungen

[Kal17]

[PDFBIB](#)

Kalkov, I., "A real-time capable, open-source-based platform for off-the-shelf embedded devices", PhD Thesis, Aachen, 2017.

A real-time capable, open-source-based platform for off-the-shelf embedded devices

Bibtex entry :

```
@phdthesis { Kal17,
  author = { Kalkov, Igor },
  othercontributors = { Kowalewski, Stefan and A{\ss}mann, Uwe },
  title = { A real-time capable, open-source-based platform for
    off-the-shelf embedded devices },
  publisher = { RWTH Aachen University, Department of Computer
    Science },
  school = { RWTH Aachen University },
  pages = { 1 Online-Ressource (xx, 114 Seiten) : Illustrationen,
    Diagramme },
  series = { Aachener Informatik-Berichte },
  year = { 2017 },
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    http://publications.rwth-aachen.de/record/719343/files/719343.pdf },
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[KGK17]

[PDFBIB](#)

Kalkov, I., Gurchian, A., and Kowalewski, S., "Explicit prioritization of parallel Intent broadcasts in real-time Android", in *Proc. Concurrency and computation*, Chichester, 2017, vol. 29, Wiley.

Explicit prioritization of parallel Intent broadcasts in real-time Android

Bibtex entry :

```
@inproceedings { KGK17,
  author = { Kalkov, Igor and Gurchian, Alexandru and Kowalewski,
Stefan },
  title = { Explicit prioritization of parallel Intent broadcasts in
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Real-Time and Embedded systems, Niagara Falls, NY (USA),
2014-10-13 - 2014-10-14 },
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[KGK15]

[PDFBIB](#)

Kalkov, I., Gurchian, A., and Kowalewski, S., "Priority Inheritance during Remote Procedure Calls in Real-Time Android using Extended Binder Framework", in *Proc. Proceedings of the 13th International Workshop on Java Technologies for Real-time and Embedded Systems*, New York, NY, 2015 in ACM Other conferences, ACM, p. 5.

Priority Inheritance during Remote Procedure Calls in Real-Time Android using Extended Binder Framework

Bibtex entry :

```
@inproceedings { KGK15,
  author = { Kalkov, Igor and Gurchian, Alexandru and Kowalewski,
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  title = { Priority Inheritance during Remote Procedure Calls in
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    Real-Time Android using Extended Binder Framework },
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    url = { http://publications.rwth-aachen.de/record/573802 },
}

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[KKO+15]

[PDFBIB](#)

Kowalewski, S., Kalkov, I., Obster, M., and Thönnessen, D., "Echtzeiterweiterung für Android: SPS inside", *IEE - Elektrische Automatisierung + Antriebstechnik*, pp. 58-61, 2015

Echtzeiterweiterung für Android: SPS inside

Bibtex entry :

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@article { KKO+15,
    author = { Kowalewski, Stefan and Kalkov, Igor and Obster, Mathias
and
    Th{"o"}nnessen, David },
    title = { Echtzeiterweiterung f{"u"}r Android: SPS inside },
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    pages = { 58-61 },
    year = { 2015 },
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    url = { http://publications.rwth-aachen.de/record/752275 },
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[AFK+14]

[PDFBIB](#)

Armoush, A., Franke, D., Kalkov, I., and Kowalewski, S., "An Approach for Using Mobile Devices In Industrial Safety-Critical Embedded Systems", in *Proc. Mobile Computing, Applications, and Services : 5th International Conference, MobiCase 2013, Paris, France, November 7-8, 2013, Revised Selected Papers*, Cham, 2014 in Lecture Notes of the Institute for Computer Sciences,

Social-Informatics and Telecommunications Engineering, Springer, pp. 294-297.

An Approach for Using Mobile Devices In Industrial Safety-Critical Embedded Systems

Bibtex entry :

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@inproceedings { AFK+14,  
  author = { Armoush, Ashraf and Franke, Dominik and Kalkov, Igor and  
    Kowalewski, Stefan },  
  title = { An Approach for Using Mobile Devices In Industrial  
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  booktitle = { Mobile Computing, Applications, and Services : 5th  
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    November 7-8, 2013, Revised Selected Papers },  
  publisher = { Springer },  
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    International Conference, Paris (France), 2013-11-07 -  
    2013-11-08 },  
  doi = { 10.1007/978-3-319-05452-0_27 },  
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  url = { http://publications.rwth-aachen.de/record/225590 },  
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[KGK14]

[PDFBIB](#)

Kalkov, I., Gurchian, A., and Kowalewski, S., "Predictable Broadcasting of Parallel Intents in Real-Time Android", in *Proc. Proceedings of the 12th International Workshop on Java Technologies for Real-time and Embedded Systems : JTRES 2014 : Niagara Falls, NY, USA, October 13th-14th, 2014*, New York, New York, 2014 in ACM international conference proceedings series, ACM, pp. 57-66.

Predictable Broadcasting of Parallel Intents in Real-Time Android

Bibtex entry :

```
@inproceedings { KGK14,  
  author = { Kalkov, Igor and Gurchian, Alexandru and Kowalewski,  
    Stefan },  
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    Android },
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Java
Technologies for Real-time and Embedded Systems : JTRES 2014
: Niagara Falls, NY, USA, October 13th-14th, 2014 },
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pages = { 57-66 },
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organization = { 12. International Workshop on Java Technologies
for
Real-time and Embedded Systems, Niagara Falls, NY (USA),
2014-10-13 - 2014-10-14 },
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url = { http://publications.embedded.rwth-aachen.de/file/5g },
}

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[OKK14]

[PDFBIB](#)

Obster, M., Kalkov, I., and Kowalewski, S., "Development and Execution of PLC Programs on Real-Time Capable Mobile Devices", in *Proc. 2014 IEEE [International Conference on] Emerging Technologies and Factory Automation (ETFA 2014) : Barcelona, Spain, 16 - 19 September 2014 / [co-sponsored by Universitat Politècnica de Catalunya - Barcelona Tech (UPC); IEEE Industrial Electronics Society]*, Piscataway, NJ, 2014, IEEE, p. 8.

Development and Execution of PLC Programs on Real-Time Capable Mobile Devices

Bibtex entry :

```

@inproceedings { OKK14,
author = { Obster, Mathias and Kalkov, Igor and Kowalewski, Stefan
},
title = { Development and Execution of PLC Programs on Real-Time
Capable Mobile Devices },
booktitle = { 2014 IEEE [International Conference on] Emerging
Technologies and Factory Automation (ETFA 2014) : Barcelona,
Spain, 16 - 19 September 2014 / [co-sponsored by Universitat
Politècnica de Catalunya - Barcelona Tech (UPC); IEEE
Industrial Electronics Society] },
publisher = { IEEE },
pages = { 8 Seiten },
year = { 2014 },
address = { Piscataway, NJ },
organization = { 2014 IEEE [International Conference on] Emerging
Technologies and Factory Automation, Barcelona (Spain),
2014-09-16 - 2014-09-19 },
doi = { 10.1109/ETFA.2014.7005218 },
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[GKS+13]

[PDFBIB](#)

Gerlitz, T., Kalkov, I., Schommer, J. F., Franke, D., and Kowalewski, S., "Non-Blocking Garbage Collection for Real-Time Android", in *Proc. 11th International Workshop on Java Technologies for Real-time and Embedded Systems : JTRES 2013 ; 9-10 October 2013, Karlsruhe, Germany*, New York, NY, 2013 in ACM Digital Library, ACM, pp. 108-117.

Non-Blocking Garbage Collection for Real-Time Android

Bibtex entry :

```

@inproceedings { GKS+13,
  author = { Gerlitz, Thomas and Kalkov, Igor and Schommer, John F.
and
    Franke, Dominik and Kowalewski, Stefan },
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  booktitle = { 11th International Workshop on Java Technologies for
    Real-time and Embedded Systems : JTRES 2013 ; 9-10 October
    2013, Karlsruhe, Germany },
  publisher = { ACM },
  pages = { 108-117 },
  series = { ACM Digital Library },
  year = { 2013 },
  address = { New York, NY },
  organization = { Java-Technologien f{"u}r Echtzeit- und
eingebettete
    Systeme, Karlsruhe (Germany), 2013-10-09 - 2013-10-10 },
  doi = { 10.1145/2512989.2512999 },
  typ = { PUB:(DE-HGF)8 },
  reportid = { RWTH-CONV-202515 },
  cin = { 120000 / 122810 },
  url = { http://publications.rwth-aachen.de/record/224782 },
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[KFS+12]

[PDFBIB](#)

Kalkov, I., Franke, D., Schommer, J. F., and Kowalewski, S., "A Real-time Extension to the Android Platform", in *Proc. JTRES 2012 : proceedings of the 10th International Workshop on Java Technologies for Real-time and Embedded Systems, October 24-26, 2012, Copenhagen, Denmark / Andy Wellings ...*, New York, N.Y., 2012 in ACM conference proceedings series, ACM Press, pp. 105-114.

A Real-time Extension to the Android Platform

Bibtex entry :

```
@inproceedings { KFS+12,  
  author = { Kalkov, Igor and Franke, Dominik and Schommer, John F.  
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  title = { A Real-time Extension to the Android Platform },  
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  pages = { 105-114 },  
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