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Research Assistant

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Research Topics

- Mobile and Real-Time Systems
 - RTAndroid ([Project](#))
 - Java Real-Time Systems
- Soft PLCs
 - IEC 61131-3
 - Execution and Simulation of PLC Programs on RTAndroid

Open Theses

- On request

Supervised Theses

- 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

Teaching

Semester	Title	Type
Summer Semester 15	Dienste in der Industrie 4.0	S
Winter Semester 14/15	Einführung in die Technische Informatik	V/Ü
	Ausgesuchte Themen zur Eingebetteten Software	S

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

Office Hours

By appointment

Publications

[Kal17]

[PDF](#)[BIB](#)

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 },  
  address = { Aachen },  
  doi = { 10.18154/RWTH-2018-222005 },  
  typ = { PUB:(DE-HGF)3 },  
  reportid = { RWTH-2018-222005 },  
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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
real-time Android },
  booktitle = { Concurrency and computation },
  publisher = { Wiley },
  volume = { 29 },
  number = { 22 },
  year = { 2017 },
  address = { Chichester },
  issn = { 1532-0626 },
  organization = { 12. International workshop on Java Technologies
for
Real-Time and Embedded systems, Niagara Falls, NY (USA),
2014-10-13 - 2014-10-14 },
  doi = { 10.1002/cpe.4122 },
  typ = { PUB:(DE-HGF)16 },
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  cin = { 122810 / 120000 },
  url = { http://publications.rwth-aachen.de/record/707959 },
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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,
Stefan },
  title = { Priority Inheritance during Remote Procedure Calls in
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Real-Time Android using Extended Binder Framework },
booktitle = { Proceedings of the 13th International Workshop on
Java
Technologies for Real-time and Embedded Systems },
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pages = { 5, 10 Seiten },
series = { ACM Other conferences },
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organization = { 13. International Workshop on Java Technologies
for
Real-time and Embedded Systems, Paris (France), 2015-10-07 -
2015-10-08 },
doi = { 10.1145/2822304.2822311 },
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reportid = { RWTH-2016-03747 },
cin = { 122810 / 120000 },
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 :

```
@article { KKO+15,
author = { Kowalewski, Stefan and Kalkov, Igor and Obster, Mathias
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Th{"o"}nnessen, David },
title = { Echtzeiterweiterung f{"u"}r Android: SPS inside },
journal = { IEE - Elektrische Automatisierung + Antriebstechnik },
publisher = { IEE },
pages = { 58-61 },
year = { 2015 },
issn = { 1434-2898 },
typ = { PUB:(DE-HGF)16 },
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cin = { 122810 / 120000 },
url = { http://publications.rwth-aachen.de/record/752275 },
}
```

[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 :

```
@inproceedings { AFK+14,  
  author = { Armoush, Ashraf and Franke, Dominik and Kalkov, Igor and  
            Kowalewski, Stefan },  
  title = { An Approach for Using Mobile Devices In Industrial  
            Safety-Critical Embedded Systems },  
  booktitle = { Mobile Computing, Applications, and Services : 5th  
                International Conference, MobiCase 2013, Paris, France,  
                November 7-8, 2013, Revised Selected Papers },  
  publisher = { Springer },  
  pages = { 294-297 },  
  series = { Lecture Notes of the Institute for Computer Sciences,  
            Social-Informatics and Telecommunications Engineering },  
  year = { 2014 },  
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  organization = { Mobile Computing, Applications, and Services : 5.  
                  International Conference, Paris (France), 2013-11-07 -  
                  2013-11-08 },  
  doi = { 10.1007/978-3-319-05452-0_27 },  
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  reportid = { RWTH-CONV-203202 },  
  cin = { 120000 / 122810 },  
  url = { http://publications.rwth-aachen.de/record/225590 },  
}
```

[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 },
booktitle = { 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 },
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pages = { 57-66 },
series = { ACM international conference proceedings series },
year = { 2014 },
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for
Real-time and Embedded Systems, Niagara Falls, NY (USA),
2014-10-13 - 2014-10-14 },
typ = { PUB:(DE-HGF)8 },
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cin = { 120000 / 122810 },
url = { http://publications.embedded.rwth-aachen.de/file/5g },
}
```

[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 },
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doi = { 10.1109/ETFA.2014.7005218 },
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cin = { 120000 / 122810 },
url = { http://publications.rwth-aachen.de/record/444615 },
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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 },
}
```

[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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  Kowalewski, Stefan },  
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  booktitle = { JTRES 2012 : proceedings of the 10th International  
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  publisher = { ACM Press },  
  pages = { 105-114 },  
  series = { ACM conference proceedings series },  
  year = { 2012 },  
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