Dr. Ing. Ibtissem Ben Makhlouf

Contact

former Research Assistant

Interests

- Erreichbarkeitsanalyse hybrider Systeme

Projects

- Sicherheitsanalyse und Regelung von Fahrzeugkolonnen

Publications

[INS17]
PDFBIB

HyReach: A Reachability Tool for Linear Hybrid Systems Based on Support Functions

Bibtex entry:

@inproceedings { INS17,
author = { Ibtissem Ben Makhlouf and Norman Hansen and Stefan Kowalewski },
editor = { Goran Frehse and Matthias Althoff },
title = { HyReach: A Reachability Tool for Linear Hybrid Systems Based on Support Functions },
booktitle = { ARCH16. 3rd International Workshop on Applied Verification for Continuous and Hybrid Systems },
series = { EPiC Series in Computing },}
Comparative evaluation and improvement of computational approaches to reachability analysis of linear hybrid systems = Methoden zur Erreichbarkeitsanalyse hybrider Systeme

Bibtex entry:

@phdthesis { Ben16,
    author = { Ben Makhlouf, I. },
    title = { Comparative evaluation and improvement of computational approaches to reachability analysis of linear hybrid systems = Methoden zur Erreichbarkeitsanalyse hybrider Systeme },
    type = { Dissertation },
    year = { 2016 },
    month = { Februar },
    i11key = { thesis },
    for_reporting_period = { 2016 },
}

[BGK15]

A Study on Solving Guard and Invariant Set Intersection in Zonotope-based Reachability of Linear Hybrid Systems

Bibtex entry:

```bibtex
@article { BGK15,
    author = { Ben Makhlouf, Ibtissem and Gan, Jonathan and Kowalewski, Stefan },
    title = { A Study on Solving Guard and Invariant Set Intersection in Zonotope-based Reachability of Linear Hybrid Systems },
    journal = { IFAC-PapersOnLine },
    year = { 2015 },
    volume = { 48 },
    pages = { 13--20 },
    publisher = { Elsevier Ltd },
    publishedas = { Online Druck },
    issn = { 2405-8963 },
    i11key = { journal },
    language = { eng },
    timestamp = { 2015.12.08 },
    for_reporting_period = { 2015 },
}
```

[BGK15]

Networked Cooperative Platoon of Vehicles for Testing Methods and Verification Tools

Bibtex entry:

```bibtex
@inproceedings { BK15,
    author = { Ben Makhlouf, Ibtissem and Kowalewski, Stefan },
    editor = { Goran Frehse and Matthias Althoff },
    title = { Networked Cooperative Platoon of Vehicles for Testing Methods and Verification Tools },
    booktitle = { ARCH14-15. 1st and 2nd International Workshop on Applied Verification for Continuous and Hybrid Systems },
    year = { 2015 },
    volume = { 34 },
    pages = { 37-42 },
    publisher = { EasyChair },
}
```

[BK15]

Optimizing Safe Control of a Networked Platoon of Trucks Using Reachability

Bibtex entry:

@inproceedings { BK15a,
    author = { Ben Makhlouf, Ibtissem and Kowalewski, Stefan },
    editor = { Goran Frehse and Matthias Althoff },
    title = { Optimizing Safe Control of a Networked Platoon of Trucks Using Reachability },
    booktitle = { ARCH14-15. 1st and 2nd International Workshop on Applied veRification for Continuous and Hybrid Systems },
    series = { EPiC Series in Computing },
    volume = { 34 },
    publisher = { EasyChair },
    issn = { 2040-557X },
    pages = { 169--179 },
    year = { 2015 },
    timestamp = { 2016.02.04 },
    for_reporting_period = { 2016 },
}
for_reporting_period = { 2016 },

[CSB+15]


A benchmark suite for hybrid systems reachability analysis

Bibtex entry :

@inproceedings { CSB+15,
    author = { Chen, Xin and Schupp, Stefan and Ben Makhlouf, Ibtissem
         and Abraham, Erika and Frehse, Goran and Kowalewski, Stefan },
    title = { A benchmark suite for hybrid systems reachability analysis },
    booktitle = { {NASA} Formal Methods - 7th International Symposium, {NFM} 2015, Pasadena, CA, USA, April 27-29, 2015, Proceedings },
    series = { Lecture Notes in Computer Science },
    volume = { 9058 },
    publisher = { Springer },
    publishedas = { Druck },
    isbn = { 978-3-319-17523-2 },
    issn = { 1611-3349 },
    language = { eng },
    pages = { 408--414 },
    year = { 2015 },
    timestamp = { 2015.01.29 },
    i11key = { Symposium },
    url = { http://dx.doi.org/10.1007/978-3-319-17524-9_29 },
    for_reporting_period = { 2015 },
}

[SAC+15]

Current Challenges in the Verification of Hybrid Systems

Bibtex entry:

```bibtex
@inproceedings { SAC+15,
    author = { Schupp, Stefan and Abraham, Erika and Chen, Xin and Ben Makhlouf, Ibtissem and Frehse, Goran and Sankaranarayanan, Sriram and Kowalewski, Stefan },
    editor = { Berger, Christian and Mousavi, Mohammad Reza },
    title = { Current Challenges in the Verification of Hybrid Systems },
    series = { Lecture Notes in Computer Science },
    volume = { 9361 },
    publisher = { Springer },
    publishedas = { Druck Online },
    isbn = { 978-3-319-25140-0 },
    issn = { 0302-9743 },
    language = { eng },
    pages = { 8-24 },
    year = { 2015 },
    timestamp = { 2015.12.08 },
    i11key = { conference },
    url = { http://dx.doi.org/10.1007/978-3-319-25141-7 },
    for_reporting_period = { 2016 }
}
```

Reachability Analysis for Managing Platoons at Intersections

Bibtex entry:

```bibtex
@inproceedings { BDK13,
    author = { Ben Makhlouf, Ibtissem and Diab, Hilal and Kowalewski, Stefan },
    title = { Reachability Analysis for Managing Platoons at Intersections },
    booktitle = { 21st Mediterranean Conference on Control & Automation (MED) Platanias-Chania, Crete, Greece, June 25-28, },
    year = { 2013 },
    isbn = { 978-3-319-25140-0 },
    issn = { 0302-9743 },
    language = { eng },
    pages = { 1141-1147 }
}
```

**Comparison of Reachability Methods for Uncertain Linear Time-Invariant Systems**

Bibtex entry:

```latex
@inproceedings { BHK13,
    author = { Ben Makhlouf, Ibtissem and Hänsch, Paul and Kowalewski, Stefan },
    title = { Comparison of Reachability Methods for Uncertain Linear Time-Invariant Systems },
    booktitle = { ECC13: European Control Conference, Zurich, Switzerland July 17-19 },
    publisher = { EUCA },
    publishedas = { Druck Online },
    isbn = { 978-3-952-41734-8 },
    language = { eng },
    pages = { 1101--1106 },
    year = { 2013 },
    timestamp = { 2013.04.30 },
    i11key = { conference },
    for_reporting_period = { 2013 },
}
```

Safety Verification of a Controlled Cooperative Platoon Under Loss of Communication Using Zonotopes

Bibtex entry:

@inproceedings { BDK12,
    author = { Ben Makhlouf, Ibtissem and Diab, Hilal and Kowalewski, Stefan },
    title = { Safety Verification of a Controlled Cooperative Platoon Under Loss of Communication Using Zonotopes },
    booktitle = { ADHS 2012, Eindhoven, NL },
    publisher = { Inproceeding of the 4th IFAC Conference on Analysis and Design of Hybrid Systems (ADHS 12) },
    publishedas = { Druck Online },
    isbn = { 978-3-902823-00-7 },
    language = { eng },
    pages = { 333--338 },
    year = { 2012 },
    timestamp = { 2012.02.28 },
    i11key = { conference },
    for_reporting_period = { 2012 },
}

[DBK12]


A Platoon of Vehicles Approaching an Intersection: A Testing Platform for Safe Intersections

Bibtex entry:

@inproceedings { DBK12,
    doi = { 10.1109/ITSC.2012.6338822 },
    author = { Diab, Hilal and Ben Makhlouf, Ibtissem and Kowalewski, Stefan },
    title = { A Platoon of Vehicles Approaching an Intersection: A Testing Platform for Safe Intersections },
    booktitle = { 15th IEEE Intelligent Transportation Systems Conference },
    publisher = { IEEE },
    publishedas = { Druck Online },

Safety Verification of a Cooperative Vehicle Platoon with Uncertain Inputs Using Zonotopes

Bibtex entry:

@inproceedings { BMH+11,
author = { Ben Makhlouf, Ibtissem and Maschuw, Jan Philipp and Hänsch, Paul and Diab, Hilal and Kowalewski, Stefan and Abel, Dirk },
title = { Safety Verification of a Cooperative Vehicle Platoon with Uncertain Inputs Using Zonotopes },
booktitle = { 18th IFAC World Congress, 2011, Milano, Italy },
publisher = { IFAC },
publishedas = { Online },
isbn = { 978-3-902661-93-7 },
language = { eng },
pages = { 9769--9774 },
year = { 2011 },
timestamp = { 2011.03.10 },
ii1key = { conference },
url = { http://publications.embedded.rwth-aachen.de/file/5o },
for_reporting_period = { 2011 },
}

Reachability Analysis of Linear Systems with Stepwise Constant Inputs

Bibtex entry:

@inproceedings { HDBK11,
author = { Hänsch, Paul and Diab, Hilal and Ben Makhlouf, Ibtissem and Kowalewski, Stefan },
title = { Reachability Analysis of Linear Systems with Stepwise Constant Inputs },
booktitle = { Proc. Electronic Notes in Theoretical Computer Science },
year = { 2011 },
volume = { 297 },
pages = { 61-74 },
publisher = { Elsevier },
issn = { 2153-0009 },
language = { eng },
pages = { 1918--1923 },
year = { 2012 },
timestamp = { 2012.07.20 },
ii1key = { conference },
for_reporting_period = { 2012 },
}
Constant Inputs

Bibtex entry:

@inproceedings { HDBK11,
    author = { H"ansch, Paul and Diab, Hilal and Ben Makhlouf, Ibtissem and Kowalewski, Stefan },
    title = { Reachability Analysis of Linear Systems with Stepwise Constant Inputs },
    booktitle = { Electronic Notes in Theoretical Computer Science },
    volume = { 297 },
    publisher = { Elsevier },
    publishedas = { Online },
    issn = { 1571-0661 },
    language = { eng },
    pages = { 61 -- 74 },
    year = { 2011 },
    timestamp = { 2012.02.13 },
    url = { http://publications.embedded.rwth-aachen.de/file/5n },
    note = { Proceedings of the first workshop on Hybrid Autonomous System (HAS2011) },
    for_reporting_period = { 2014 }
}

[CBD+10a]


On the Effects of Network Delays on an Energy-based Controller

Bibtex entry:

@inproceedings { CBD+10a,
    month = { September },
    author = { Ch"avez Grunewald, Martin and Ben Makhlouf, Ibtissem and Diab, Hilal and Abel, Dirk and Kowalewski, Stefan },
    title = { On the Effects of Network Delays on an Energy-based Controller },
    booktitle = { 2nd IFAC Workshop on Distributed Estimation and Control in Networked Systems(NecSys' 2010) },
    publisher = { IFAC },
}
Regelung und Sicherheitsanalyse einer Gruppe Massenpunktfahrzeuge mit Hilfe energiebasierter Methoden

Bibtex entry:

@article { CMD+10,
    author = { Chávez Grunewald, Martín and Ben Makhlouf, Ibtissem and Diab, Hilal and Mut, Vicente and Kowalewski, Stefan and Abel, Dirk },
    title = { Regelung und Sicherheitsanalyse einer Gruppe Massenpunktfahrzeuge mit Hilfe energiebasierter Methoden },
    journal = { at – Automatisierungstechnik },
    year = { 2010 },
    volume = { 58 },
    pages = { 227-235 },
    number = { 4 },
    doi = { 10.1524/auto.2010.0829 },
    keywords = { energy-based control, nonlinear control, network systems, hybrid automata },
    owner = { diab },
    issn = { 0178-2312 },
    timestamp = { 2010.05.12 },
    i11key = { journal },
    for_reporting_period = { 2010 },
}

A Testing Platform for Cooperative Vehicle Platoon Controllers

Bibtex entry:

```bibtex
@inproceedings { DCB+10,
    month = { September },
    owner = { diab },
    author = { Diab, Hilal and Ch\'{a}vez Grunewald, Mart\'{i}n and Ben Makhlouf, Ibtissem and Abel, Dirk and Kowalewski, Stefan },
    title = { A Testing Platform for Cooperative Vehicle Platoon Controllers },
    booktitle = { 13th International IEEE Conference on Intelligent Transportation Systems (ITSC 2010) },
    publisher = { IEEE },
    publishedas = { Online },
    isbn = { 978-1-4244-7658-9 },
    language = { eng },
    pages = { 1718--1723 },
    year = { 2010 },
    timestamp = { 2010.07.02 },
    i11key = { conference },
    for_reporting_period = { 2010 },
}
```

[MKCA09]

Safety Assessment of Networked Vehicle Platoon Controllers -- Practical Experiences With Available Tools

Bibtex entry:

```bibtex
@inproceedings { MKCA09,
    author = { Ben Makhlouf, Ibtissem and Kowalewski, Stefan and Ch\'{a}vez Grunewald, Martin Guillermo and Abel, Dirk },
    title = { Safety Assessment of Networked Vehicle Platoon Controllers -- Practical Experiences With Available Tools },
    booktitle = { 3rd IFAC Conference on Analysis and Design of Hybrid Systems, Zaragoza, Spain 2009 },
    year = { 2009 },
}
```

**An Evaluation of Two Recent Reachability Analysis Tools for Hybrid Systems**

**Bibtex entry**:

```latex
@inproceedings { MK06,
    author = { Ben Makhlouf, Ibtissem and Kowalewski, Stefan },
    title = { An Evaluation of Two Recent Reachability Analysis Tools for Hybrid Systems },
    booktitle = { 2nd IFAC Conference on Analysis and Design of Hybrid Systems },
    year = { 2006 },
    month = { },
    abstract = { The hybrid systems community is still struggling to provide practically applicable verification tools. Recently, two new tools, PHAVer and Hsolver, were introduced which promise to be a further step in this direction. We evaluate and compare both tools with the help of several benchmark examples. The results show that both have their strengths and weaknesses, and that there still is no all-purpose reachability analysis tool for hybrid systems. },
    owner = { IBM },
    timestamp = { 2008.09.15 },
    url = { http://www.ifac-papersonline.net/cgi-bin/links/page.cgi?g=Detailed/30190.html;d=1 },
    i11key = { conference },
    for_reporting_period = { Old },
} 
```