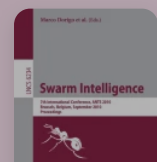


[Home](#) > [Swarm Intelligence](#) > Conference paper

# Particle Swarm Optimization of Bollinger Bands

| Conference paper

| pp 504–511 | [Cite this conference paper](#)



**Swarm Intelligence**

(ANTS 2010)

## Your privacy, your choice

We use essential cookies to make sure the site can function. We, and our 93 **partners**, also use optional cookies and similar technologies for advertising, personalisation of content, usage analysis, and social media.

By accepting optional cookies, you consent to allowing us and our partners to store and access personal data on your device, such as browsing behaviour and unique identifiers. Some third parties are outside of the European Economic Area, with varying standards of data protection. See our **[privacy policy](#)** for more information on the use of your personal data. Your consent choices apply to springer.com and applicable subdomains.

You can find further information, and change your preferences via 'Manage preferences'. You can also change your preferences or withdraw consent at any time via 'Your privacy choices', found in the footer of every page.

We use cookies and similar technologies for the following purposes:

- > **Store and/or access information on a device**
- > **Personalised advertising and content, advertising and content measurement, audience research and services development**

[Accept all cookies](#)

[Reject optional cookies](#)

[Manage preferences](#)

Sharpe ratio, Sortino ratio and accuracy. The experiment results show that the parameters optimized through PSO using the profitability fitness function produced superior out-of-sample trading results which includes transaction costs when compared to the default parameters.



This is a preview of subscription content, [log in via an institution](#) to check access.

Access this chapter

Log in via an institution →

Subscribe and save

## Your privacy, your choice

We use essential cookies to make sure the site can function. We, and our 93 **partners**, also use optional cookies and similar technologies for advertising, personalisation of content, usage analysis, and social media.

By accepting optional cookies, you consent to allowing us and our partners to store and access personal data on your device, such as browsing behaviour and unique identifiers. Some third parties are outside of the European Economic Area, with varying standards of data protection. See our **privacy policy** for more information on the use of your personal data. Your consent choices apply to [springer.com](#) and applicable subdomains.

You can find further information, and change your preferences via 'Manage preferences'. You can also change your preferences or withdraw consent at any time via 'Your privacy choices', found in the footer of every page.

We use cookies and similar technologies for the following purposes:

- Store and/or access information on a device
- Personalised advertising and content, advertising and content measurement, audience research and services development

Accept all cookies

Reject optional cookies

Manage preferences

- Compact, lightweight edition
- Dispatched in 3 to 5 business days
- Free shipping worldwide - [see info](#)

Buy Softcover Book →

Tax calculation will be finalised at checkout

**Purchases are for personal use only**

[Institutional subscriptions](#) →

## Preview

### Your privacy, your choice

We use essential cookies to make sure the site can function. We, and our 93 **[partners](#)**, also use optional cookies and similar technologies for advertising, personalisation of content, usage analysis, and social media.

By accepting optional cookies, you consent to allowing us and our partners to store and access personal data on your device, such as browsing behaviour and unique identifiers. Some third parties are outside of the European Economic Area, with varying standards of data protection. See our **[privacy policy](#)** for more information on the use of your personal data. Your consent choices apply to [springer.com](#) and applicable subdomains.

You can find further information, and change your preferences via 'Manage preferences'. You can also change your preferences or withdraw consent at any time via 'Your privacy choices', found in the footer of every page.

We use cookies and similar technologies for the following purposes:

**Store and/or access information on a device**

**Personalised advertising and content, advertising and content measurement, audience research and services development**

Accept all cookies

Reject optional cookies

Manage preferences

2. Lento, C., Gradojevic, N.: The profitability of technical trading rules: a combined signal approach. *Journal of Applied Business Research* 23(1), 13–27 (2007)

[Google Scholar](#)

3. Lento, C., Gradojevic, N., Wright, C.: Investment information content in Bollinger Bands? *Applied Financial Economics Letters* 3(4), 263–267 (2007)

[Article](#) [Google Scholar](#)

4. Leung, J., Chong, T.: An empirical comparison of moving average envelopes and

## Your privacy, your choice

We use essential cookies to make sure the site can function. We, and our 93 **partners**, also use optional cookies and similar technologies for advertising, personalisation of content, usage analysis, and social media.

By accepting optional cookies, you consent to allowing us and our partners to store and access personal data on your device, such as browsing behaviour and unique identifiers. Some third parties are outside of the European Economic Area, with varying standards of data protection. See our **privacy policy** for more information on the use of your personal data. Your consent choices apply to springer.com and applicable subdomains.

You can find further information, and change your preferences via 'Manage preferences'. You can also change your preferences or withdraw consent at any time via 'Your privacy choices', found in the footer of every page.

We use cookies and similar technologies for the following purposes:

### Store and/or access information on a device

### Personalised advertising and content, advertising and content measurement, audience research and services development

[Accept all cookies](#)[Reject optional cookies](#)[Manage preferences](#)

# Author information

---

## Authors and Affiliations

**Faculty of Computer Science, Artificial Intelligence Group, University of York, UK**

Matthew Butler & Dimitar Kazakov

## Editor information

---

## Editors and Affiliations

**IRIDIA, CoDE, Université Libre de Bruxelles, Brussels, Belgium**

Marco Dorigo

**IRIDIA, CoDE, Université Libre de Bruxelles, Av. F. Roosevelt 50, CP 194/6,**

## Your privacy, your choice

We use essential cookies to make sure the site can function. We, and our 93 **[partners](#)**, also use optional cookies and similar technologies for advertising, personalisation of content, usage analysis, and social media.

By accepting optional cookies, you consent to allowing us and our partners to store and access personal data on your device, such as browsing behaviour and unique identifiers. Some third parties are outside of the European Economic Area, with varying standards of data protection. See our **[privacy policy](#)** for more information on the use of your personal data. Your consent choices apply to springer.com and applicable subdomains.

You can find further information, and change your preferences via 'Manage preferences'. You can also change your preferences or withdraw consent at any time via 'Your privacy choices', found in the footer of every page.

We use cookies and similar technologies for the following purposes:

**Store and/or access information on a device**

**Personalised advertising and content, advertising and content measurement, audience research and services development**

**[Accept all cookies](#)**

**[Reject optional cookies](#)**

**[Manage preferences](#)**

**Department of Automatic Control and Systems Engineering, The  
University of Sheffield, Mappin Street, S1 3JD, Sheffield, UK**

Roderich Groß

**KOVAN Research Lab., Department of Computer Engineering, Middle East  
Technical University, Inonu Bulvari, 06531, Ankara, Turkey**

Erol Şahin

**Department of Bioengineering, Binghamton University, State University of  
New York, 13902-6000, Binghamton NY, USA**

Hiroki Sayama

**IRIDIA, CoDE, Université Libre de Bruxelles, Avenue F. Roosevelt 50, CP  
194/6, 1050, Brussels, Belgium**

Thomas Stützle

## Your privacy, your choice

We use essential cookies to make sure the site can function. We, and our 93 [partners](#), also use optional cookies and similar technologies for advertising, personalisation of content, usage analysis, and social media.

By accepting optional cookies, you consent to allowing us and our partners to store and access personal data on your device, such as browsing behaviour and unique identifiers. Some third parties are outside of the European Economic Area, with varying standards of data protection. See our [privacy policy](#) for more information on the use of your personal data. Your consent choices apply to springer.com and applicable subdomains.

You can find further information, and change your preferences via 'Manage preferences'. You can also change your preferences or withdraw consent at any time via 'Your privacy choices', found in the footer of every page.

We use cookies and similar technologies for the following purposes:

**Store and/or access information on a device**

**Personalised advertising and content, advertising and content measurement,  
audience research and services development**

[Accept all cookies](#)


[Reject optional cookies](#)

[Manage preferences](#)

Online ISBN  
978-3-642-15461-4

eBook Packages  
[Computer Science](#)  
[Computer Science \(R0\)](#)

## Publish with us

[Policies and ethics](#) 

## Search

Search by keyword or author

## Your privacy, your choice

We use essential cookies to make sure the site can function. We, and our 93 [partners](#), also use optional cookies and similar technologies for advertising, personalisation of content, usage analysis, and social media.

By accepting optional cookies, you consent to allowing us and our partners to store and access personal data on your device, such as browsing behaviour and unique identifiers. Some third parties are outside of the European Economic Area, with varying standards of data protection. See our [privacy policy](#) for more information on the use of your personal data. Your consent choices apply to [springer.com](#) and applicable subdomains.

You can find further information, and change your preferences via 'Manage preferences'. You can also change your preferences or withdraw consent at any time via 'Your privacy choices', found in the footer of every page.

We use cookies and similar technologies for the following purposes:

**Store and/or access information on a device**

**Personalised advertising and content, advertising and content measurement, audience research and services development**

[Accept all cookies](#)

[Reject optional cookies](#)

[Manage preferences](#)

## Your privacy, your choice

We use essential cookies to make sure the site can function. We, and our 93 [partners](#), also use optional cookies and similar technologies for advertising, personalisation of content, usage analysis, and social media.

By accepting optional cookies, you consent to allowing us and our partners to store and access personal data on your device, such as browsing behaviour and unique identifiers. Some third parties are outside of the European Economic Area, with varying standards of data protection. See our [privacy policy](#) for more information on the use of your personal data. Your consent choices apply to [springer.com](#) and applicable subdomains.

You can find further information, and change your preferences via 'Manage preferences'. You can also change your preferences or withdraw consent at any time via 'Your privacy choices', found in the footer of every page.

We use cookies and similar technologies for the following purposes:

**Store and/or access information on a device**

**Personalised advertising and content, advertising and content measurement, audience research and services development**

[Accept all cookies](#)

[Reject optional cookies](#)

[Manage preferences](#)