

Disclosure Slide

Financial Disclosure for:

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We have nothing to disclose

Section 5

Imputation Bot



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MICHIGAN
IMPUTATION SERVER

Learning objectives

Participants will

1. Learn how to use Imputation bot
1. Learn how to automate job submission

Challenges

- More and more imputation servers will be available soon
 - Additional reference panels
 - Different geographical locations
 - Example: TOPMed Imputation Server
- Challenges
 - Hard to keep track of instances, jobs and results
 - Graphical web interface not ideal for automation
 - Complex to integrate in own pipelines or scripts

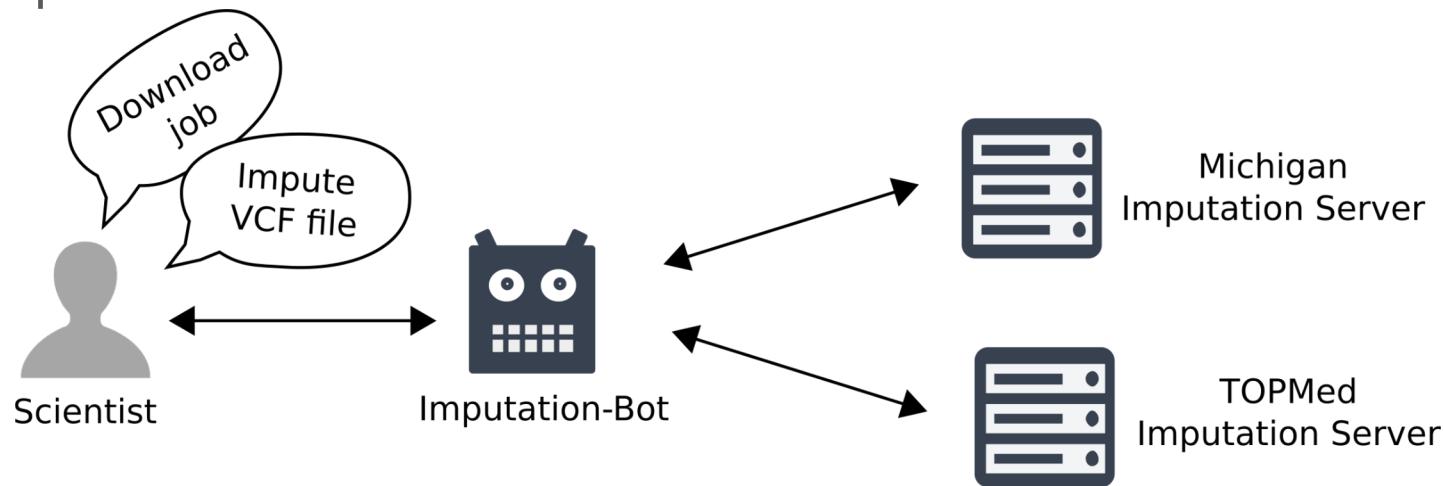


Imputation Bot

<https://github.com/lukfor/imputationbot>

Imputation Bot

- Automate remote imputation
- Submit and monitor jobs from the command line
- Different commands can easily be combined
- Improves automation



1. Enable API Access

 lukfor ▾

Profile

Logout



API Access

This service provides a rich RestAPI to submit, monitor and download jobs

You need a access token to use the API. [Learn more.](#)

 Create API Token



API Token

Your token for this service is:

```
eyJdHkiOj0ZXh0XC9wbGFpbilslmFsZyl6ikhTMjU2In0.eyJtY  
WlslioibHvrYXMuZm9yZXJAaS1tZWQuYWMMuYXQiLCJleHBp  
cmUiOjE1NzMyMjkwNTY3NTEslm5hbWUiOiJMdWthcyBGb3J  
IcilsImFwaSl6dHJ1ZSwidXNlcm5hbWUiOiJsdWtmb3IifQ.qY7i
```

OK

2. Install Imputation Bot

lukas@lukas-workstation:~/imputationbot\$ █

```
lukas@lukas-workstation:~/imputationbot$ curl -sL imputationbot.now.sh | bash
```

```
lukas@lukas-workstation:~/imputationbot$ curl -sL imputationbot.now.sh | bash
Installing Imputation Bot v0.8.3...
Downloading Imputation Bot from https://github.com/lukfor/imputationbot/releases
/download/v0.8.3/imputationbot-installer.sh...
% Total    % Received % Xferd  Average Speed   Time     Time     Time  Current
                                         Dload  Upload   Total   Spent   Left  Speed
100  652  100  652    0      0  1895      0  --:--:--  --:--:--  --:--:--  1895
100 2995k  100 2995k    0      0  390k      0  0:00:07  0:00:07  --:--:--  518k
Verifying archive integrity... 100% All good.
Uncompressing Make
script=self-extractable
scriptargs=archives makeself.sh 100%

Imputation Bot v0.8.3 installation completed. Have fun!
```

```
lukas@lukas-workstation:~/imputationbot$ █
```

3. Configure Imputation Bot

lukas@lukas-workstation:~/imputationbot\$./imputationbot add-instance

lukas@lukas-workstation:~/imputationbot\$./imputationbot add-instance

Imputation Bot 0.8.3

<https://imputationserver.sph.umich.edu>

(c) 2019-2020 Lukas Forer, Sebastian Schoenherr and Christian Fuchsberger

Built by lukas on 2020-10-08T12:27:01Z

Imputationserver Url [<https://imputationserver.sph.umich.edu>]: █

lukas@lukas-workstation:~/imputationbot\$./imputationbot add-instance

Imputation Bot 0.8.3

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Imputationserver Url [<https://imputationserver.sph.umich.edu>]:

API Token [None]:

lukas@lukas-workstation:~/imputationbot\$./imputationbot add-instance

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Imputationserver Url [<https://imputationserver.sph.umich.edu>]:

API Token [None]: eyJjdHkiOiJ0ZXh0XC9wbGFpbIIsImFsZyI6IkhTMjU2In0.eyJtYWlsIjoibHVrYXMuZm9yZXJAaS1tZWQuYWMuYXQiLCJleHBpcmUiOjE2MDQzMzkzMzAwNzYsIm5hbWUiOiJMdWthcyIisImFwaSI6dHJ1ZSwidXNlcm5hbWUiOiJsdWtmb3IifQ.1n0YSJr58WHXn3pi0rv8Th-FZHJVxxUb-7KVfUfadta

```
lukas@lukas-workstation:~/imputationbot$ ./imputationbot add-instance
```

Imputation Bot 0.8.3

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Hi Lukas

Imputation Bot is ready to submit jobs to <https://imputationserver.sph.umich.edu>
(Genotype Imputation (Minimac4)) 1.4.1

```
lukas@lukas-workstation:~/imputationbot$ █
```

4. Submit a Job

```
lukas@lukas-workstation:~/imputationbot$ ./imputationbot impute --files test-data/chr20.R50.merged.1.330k.recode.vcf.gz --refpanel 1000g-phase-3-v5 --population eur
```

```
lukas@lukas-workstation:~/imputationbot$ ./imputationbot impute --files test-data/chr20.R50.merged.1.330k.recode.vcf.gz --refpanel 1000g-phase-3-v5 --population eur
```

Imputation Bot 0.8.3

<https://imputationserver.sph.umich.edu>

(c) 2019-2020 Lukas Forer, Sebastian Schoenherr and Christian Fuchsberger

Built by lukas on 2020-10-08T12:27:01Z

Submitting job for 1000g-phase-3-v5 to Michigan Imputation Server...

Parameters:

refpanel: apps@1000g-phase-3-v5

files:

- test-data/chr20.R50.merged.1.330k.recode.vcf.gz

build: hg19

r2Filter: 0

phasing: eagle

population: eur

aesEncryption: no

Uploading files [100%]

Imputation Bot 0.8.3

<https://imputationserver.sph.umich.edu>

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Built by lukas on 2020-10-08T12:27:01Z

Submitting job for 1000g-phase-3-v5 to Michigan Imputation Server...

Parameters:

refpanel: apps@1000g-phase-3-v5

files:

- test-data/chr20.R50.merged.1.330k.recode.vcf.gz

build: hg19

r2Filter: 0

phasing: eagle

population: eur

aesEncryption: no

Uploading files [100%]

Imputation job 'job-20201008-084828-935' submitted successfully

Check the job progress on <https://imputationserver.sph.umich.edu/index.html#!jobs/job-20201008-084828-935>

5. Download Data

```
bash-3.2$ ./imputationbot download job-20191012-152533-884 --password mkW5oPAB-7c
```

```
bash-3.2$ ./imputationbot download job-20191012-152533-884 --password mkW5oPAB-7c
```

Imputation Bot 0.1.3

<https://imputationserver.sph.umich.edu>

(c) 2019 Lukas Forer, Sebastian Schoenherr and Christian Fuchsberger

Built by lukas on 2019-10-13T07:19:51Z

Downloading job job-20191012-152533-884...

Downloading file job-20191012-152533-884/qcreport/qcreport.html (1/5)

```
bash-3.2$ ./imputationbot download job-20191012-152533-884 --password mkW5oPAB-7c
```

Imputation Bot 0.1.3

<https://imputationserver.sph.umich.edu>

(c) 2019 Lukas Forer, Sebastian Schoenherr and Christian Fuchsberger

Built by lukas on 2019-10-13T07:19:51Z

Downloading job job-20191012-152533-884...

Downloading file job-20191012-152533-884/qcreport/qcreport.html (1/5)

Downloading file job-20191012-152533-884/statisticDir/snps-excluded.txt (2/5)

Downloading file job-20191012-152533-884/statisticDir/typed-only.txt (3/5)

Downloading file job-20191012-152533-884/local/chr_20.zip (4/5)

Decrypting file job-20191012-152533-884/local/chr_20.zip...

```
bash-3.2$ ./imputationbot download job-20191012-152533-884 --password mkW5oPAB-7c
```

Imputation Bot 0.1.3

<https://imputationserver.sph.umich.edu>

(c) 2019 Lukas Forer, Sebastian Schoenherr and Christian Fuchsberger

Built by lukas on 2019-10-13T07:19:51Z

Downloading job job-20191012-152533-884...

Downloading file job-20191012-152533-884/qcreport/qcreport.html (1/5)

Downloading file job-20191012-152533-884/statisticDir/snps-excluded.txt (2/5)

Downloading file job-20191012-152533-884/statisticDir/typed-only.txt (3/5)

Downloading file job-20191012-152533-884/local/chr_20.zip (4/5)

Decrypting file job-20191012-152533-884/local/chr_20.zip...

Downloading file job-20191012-152533-884/logfile/chr_20.log (5/5)

All data downloaded and stored in /Users/lukas/imputationbot/job-20191012-152533-

```
bash-3.2$ █
```

Summary

- Imputation bot automates interactions with Imputation Servers
- Simplifies multi-reference and multi-study imputation
- Available: <https://github.com/lukfor/imputationbot>

More info and FAQ can be found here:
<https://imputationserver.readthedocs.io>