

DAMIR VUKRES

AI/ML, C/C++ and PROLOG R&D

Web developer, web architect,
Solution architect,
RESTful, microservices,
PHP multithreading ,
PHP multiserver (see ETL topic),
PHP embedding and extending,
C/C++ programmer,
JavaScript developer,
Bootstrap, Foundation, React
Database designer,
Full Stack developer,
Prolog interpreter developer*,
AI/ML implementation*,
ETL*, ELT*,
Data migration*, data cleaning*,
Data extraction*, web scraping*,
Complex data integration*,
Expert system*,
BI solution*.

**- developing only*

Education:

Bcc IT, University of Split

MSc of informatics
University of Zagreb

info@w-app.net

Recently I'm working on:

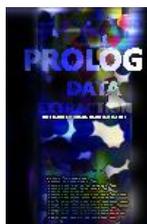
- AI/ML
- ETL, Data extraction
- Business intelligence
- Data harvesting, data wrangling
- Data migration, (re)shaping
- Complex data integration

solutions using PHP, JavaScript, Prolog, Java and C/C++.

2003-2016 LAMP was my principle occupation. I have started with PHP3 mostly working with MySQL, but also with Postgres and later with MariaDB. SQLite3 also could be good choice for some projects.

As a Full Stack developer I was starting with database design and develop both back end and front end. I was using different frameworks and supporting technologies mostly on client demand. Some examples for this CV were developed in Bootstrap, React and Foundation.

Since 2016, I have been developing a Prolog interpreter in C++ from the scratch, or rather, a program based on Prolog because I have added parts with a functional and object oriented paradigm. There are also interesting predicates on basis of AI algorithms. Direction of that project is dictated by jobs I was working on and those I will work on. Intention is to use it for NLP, ETL, AI/ ML, Web scraping and other project where it may need.



[1st example](#) From 88 text files (html pages) to Prolog knowledge base, data reshaping, remapping, aggregating, new data organization, database from extracted data. DB tables from structures, 40+ dedicated embedded predicates...



2nd example Incomplete model shown through the famous Einstein's Zebra puzzle. Model Analysis, model querying, reverse engineering...

Presentation on demand.

C++ libraries for some specific task form shown Prolog's capabilities or something desired is also possibility. For various projects it could be of great help.

Closely related is **PHP embedding or extending**. For convenience in using various applications (Prolog, etc...), new functionality or some parts of project that must be really fast.

- **SPORT STREAM** Application with different approach to live stream: w-app.net/CV/SportStream/
- Several older applications: Realtor, Florist, MLS, Travel, Basic Business Management <http://www.w-app.net/CV/Ans/>



- **Kompenzacije.net** was a barter dedicated site. Does not work any more because there is no interest for barter any more. Instead of application www.kompenzacije.net/ will enter its backend manual.



- **iBooking's** frontend has something interesting : look at calendar. It is possible to click on some day, and it will become green. First day and last interval are half-green, others are full-occupied accommodation: half-red calendar, its left side, right side, or that has interval over 3 or more months), will remember what user has doesn't matter if he starts to browse months at any direction after that. Also calendar will adjust accompanied drop downs for any situation that users may chose (and vice versa). This functionality takes about 18 Kb of JavaScript. Calendar code and screenshots:

March / 2017							April / 2017						
M	T	W	T	F	S	S	M	T	W	T	F	S	S
		1	2	3	4	5						1	2
6	7	8	9	10	11	12	3	4	5	6	7	8	9
13	14	15	16	17	18	19	10	11	12	13	14	15	16
20	21	22	23	24	25	26	17	18	19	20	21	22	23
27	28	29	30	31			24	25	26	27	28	29	30

day of chosen green. Same for and full-red. The both, or even action (maximum 23

www.phpclasses.org/package/11019-PHP-Let-users-select-calendar-dates-for-bookings.html
 Manual of iBooking first version:
 HR: w-app.net/CV/WA/WebApartmani.pdf
 EN: w-app.net/CV/WA/WebApartmaniEN.pdf
Admin credentials on demand.

- **HTML Console or HTML2PHP**
Application is able to recognize some Bootstrap versions and offer editing capabilities:
w-app.net/CV/HTMLCons/



- **iShares**
<http://ishares.w-app.net/>
iShares allows shareholders to to gain insight their project. Two level admin backoffice. Some interesting security issues...
Admin credentials on demand.

- **Tree**
Simple demo for generating some kind of trees:
www.w-app.net/CV/tree/
Explanation:
www.w-app.net/CV/tree/treegen.php

- **Logger**

This is more than just notifying of interesting moments during program execution. It may replace unit testing, send email or even sms to person in charge, prevent bugs or treat them when they arise, track multiple threads, etc...

This UML diagram:

www.w-app.net/LOGGER.png

shows core logging engine, and just file related observers because of clarity, easy reference and quantity of information. Others (database and email related, as well as actions hunters-responders, or logger supported error recovering) follow the same principles.

Observers:

www.w-app.net/LoggerObservers

I can say to any of them what to do, or not to do, at which file, method, class, line, and at what way to perform what I expect from them:

- **Users logg browser**

Screenshots: www.w-app.net/CV/ULB.pdf

Application for users administration and logs control. It allows permission control over some parts of program and systematic and permanent control of user's actions. To avoid confusion with Logger: this logs are related on user actions only. Multilanguage working example could be seen at [OB CMS](#) topic.

- **SQLite3 checker:**

Checks if a file is of a SQLite3 database:

www.phpclasses.org/package/10629-PHP-Checks-if-a-file-is-of-a-SQLite3-database.html

Some interesting snippets:

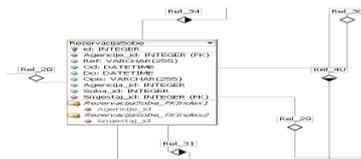
- Some interesting security features from iShares:

http://www.w-app.net/CV/iShares_second_level.pdf

- Logg of autobooking engine: www.w-app.net/iBookingsAutobookingLogg.txt

This is first draft of database for **iTour** project:

<http://www.w-app.net/CostaDraft1.png>



- Framework project has interesting suite for configuration & instantiation of classes:

www.w-app.net/CNF.png

- Example of iDTP's logg:

http://www.w-app.net/Example_Logg.txt

After composite (just a little bit o composite logg is here, then starts thread loop) finished its work, thread engine started with dispatched tasks. Last started thread, in this logg with number 30, has been checked at ordered period for its status. After its status become 0, means its job is over, so engine could try to close it. After that engine tries to check status of other threads, and since they all have started before number 30, they are finished too, so all of them engine attempts to close.

This is just a little part, specially shortened for this occasion, because this logg takes care about few hundreds of data, and some of them may have hundreds of logged different states.

Second example:

http://www.w-app.net/Example_Logg2.txt

This logg shows relation between parent and child process. Also it shows execution times of forked children, and order of its closing. It depends of the amount of work every particular thread had to do, so, they was started in sequential order (0,1,2,3,4,5,6,7,...), and finished, as logg shows: 0,7,1,9,8,18,15...

- Since iDTP is server distributed application, time of production is directly connected with installed hardware. It scales well with added resource, so, if user decide to double speed of production, he has simple solution.
User decides what part of application will work where, at which server in particular time.
Screenshots:
<http://w-app.net/CV/SDA/>
- Comparison among few usual formats (XML, JSON...) and some improvements for REST and other kinds of inter-applications communication. Testing application will generate and compare different files. Also some ideas for big data:
<http://w-app.net/CV/FC/>

iDTP

Please find some articles from Croatian IT magazine “Mreza” describing one of projects I’ve been working on:

1. www.w-app.net/Mreza_travanj_2008_85.JPG
2. www.w-app.net/Mreza_travanj_2008_86.JPG
3. www.w-app.net/Mreza_travanj_2008_87.JPG

An in-jpg machine translation attempt. With some intervention is partially usable:

1. www.w-app.net/CV/WA/Mreza_travanj_2008_85_trans.jpg
2. www.w-app.net/CV/WA/Mreza_travanj_2008_86_trans.jpg
3. www.w-app.net/CV/WA/Mreza_travanj_2008_87_trans.jpg

Proper translation: http://www.w-app.net/iDTP_English.doc

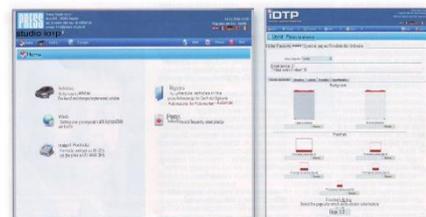
iDTP is “one of the kind”, at least I haven’t google-ed out anything similar. It works at ordered iDTP does its server(s), one many tasks as

iDTP is on the Internet, as ads issued agree" (prepare need for human interventions. However, it is not everything - not only iDTP is able to transfer all materials in the form suitable for printing, but the application could generate individual websites with the current content for each of its users.



multiserver environment in which redundancy helps if one of servers failed. work by dispatching tasks at chosen or more, and each of them then forks as current business process needs.

a set of technologies that are strongly rely and which allow typical materials, such by the company (user), practically “alone themselves) for printing even without the



“Before using iDTP application magazine had volume of 150 pages, in the process of preparing the journal and processing about 2800 images, five people worked six days and four nights which is approximately complete the process of delivery of ads from the advertiser to the finished material ready for

The magazine in a few clicks

400 working hours to

printing house. The current situation, when using iDTP, is that Journal of 208 pages with over 3800 photographs wraps one man in 10 hours.”

Those words of project’s owner means that iDTP effectively change 50 graphics:
“Imagine that you have a magazine of 150 pages (With approximately 2800 photographs), which develops team of five graphics six days and four nights (about 400 hours). Then the market dictate to increase the volume to a minimum of 200 pages, and you simply want to gain greater actuality of ads and to reduce production time to a maximum 10 hours from the time when advertisers have submitted material until ready PDF's for printing house. The solution is "easy" - you can hire 52 graphics (520 man-hours in a given time 10 hours) - and the problem is solved! !”

Even Swap

Package won second place at Innovation award competition. Code:

<https://www.phpclasses.org/package/9305-PHP-Implement-decision-methods-using-Even-Swaps.html>

Examples:

[evenswap.w-a-f.org/example/example.html](https://www.phpclasses.org/package/9305-PHP-Implement-decision-methods-using-Even-Swaps.html)

Demo:

<http://evenswap.w-a-f.org/>



September 2015 Number 2

I would like to see Your query:

Project has started as kind of DB visualization. Then went to some other direction.

Presented database is one of iBooking’s version.

w-app.net/CV/DBQ/

ETL, Data migration, Expert System

In case that somebody may need programming approach this little application skeleton could be good starting point. This is agents based access: for every task pool generate new agent. Web interface shows what is happening during input retrieving and data extraction. This is just presentation of possible acceptance of the problem using simple entry data set, same one as for Prolog’s first example.

Screenshots:

<http://w-app.net/CV/ETL/>

In real situation all of that would be the task of single agent because of small data quantity. But, let say that every club has several GBs, then current agent would fork new agent, means open new thread, ad hoc for that task. Those forking could be from the same pool, or any application instance on some accessible server.

New threads/Agents as well as their jobs are rule based. Same application infrastructure could be used for Data mining, migration, definition, etc... Since possible usage is very versatile, every particular situation requires majority of new coding. This platform acts just as first (few) step(s) of new solution...

ELSE

In the beginning it was teaching programming. Then Easy learning something ELSE. It also could be platform. School management developed using ELSE.

w-app.net/CV/ELSE/



tool for learning web seems to get meaning of kind of development application has been

I have Bcc in IT:

<http://www.w-app.net/diploma.pdf>

208 ECTS; 4,48 grade point average.

And I have MSc in informatics:

<http://www.w-app.net/d/en/>

132 ECTS, 4,61 grade point average.

I am currently in my third year of doctoral studies in bioinformatics.

Sincerely,

Damir Vukres

