



Maximising Exposure of Audiovisual Content through Automatic Localisation

(Contact : maarten.verwaest@limecraft.com)

000. About Limecraft

Limecraft

- Incorporated May 2010
- Video Production Workflows (High-end episodic, non-scripted, Archiving)
- Customers : producers, post facilities and broadcasters

Industrialising media production through Automated Workflows

- Production: Dailies creation
- Post-production: auto rough cut
- Mastering: Automatic captioning and subtitling

The Business Case for Subtitling and Localisation

- Reduces 80% of the mastering cost by automated versioning
- Enables producers to create alternative versions at marginal cost
- Focus on content creation rather than on tools and logistics





Agenda

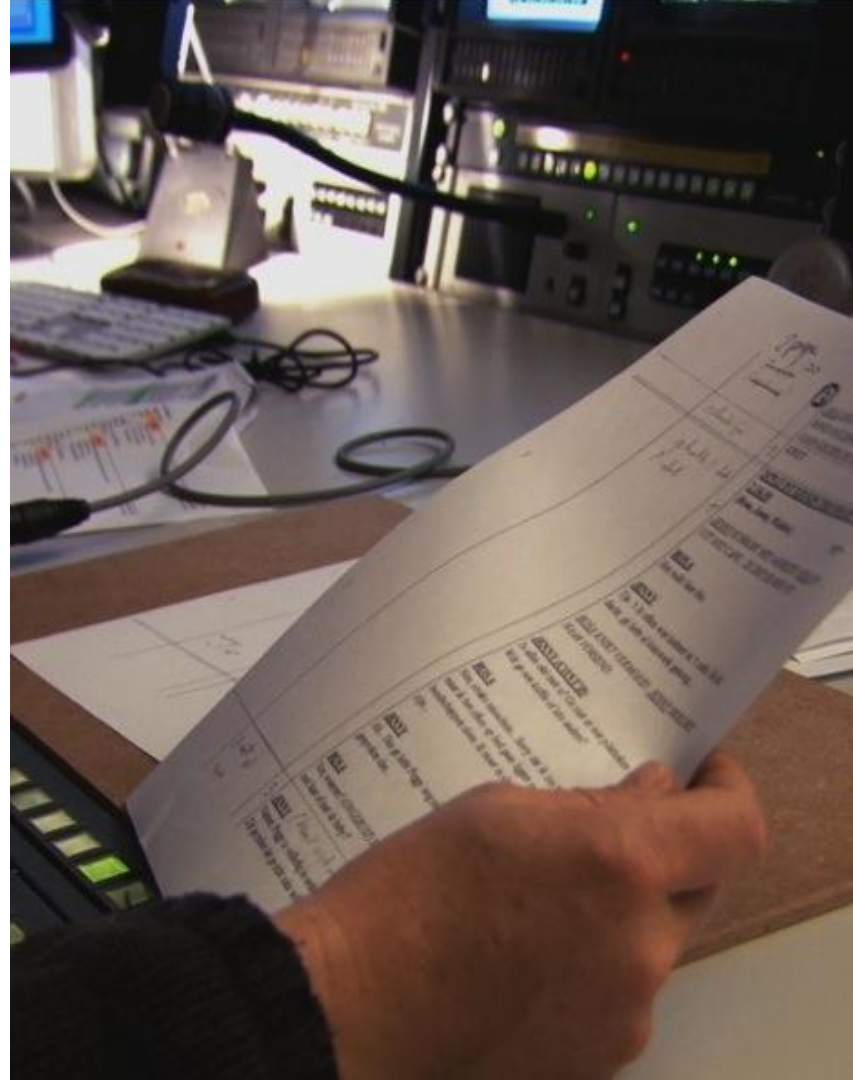
- Solution overview
- Before Subtitling – Machine Transcription
 - Use Case: computer assisted logging, transcript-based edit, transfer to edit
 - Key Feature: Machine Transcription (speech-to-text)
 - Business Case: process more material in less time
- Use Case 1 – Closed Captions
 - Use Case: same-language subtitling for accessibility purposes
 - Key feature: automatic “spotting”
 - Business Case: cuts 75% of the subtitling cost
- Use Case 2 - Localisation
 - Use Case: language-to-language subtitling for localisation purposes
 - Key feature: machine translation
 - Business Case: cuts 80% of the subtitling cost

State of the Art

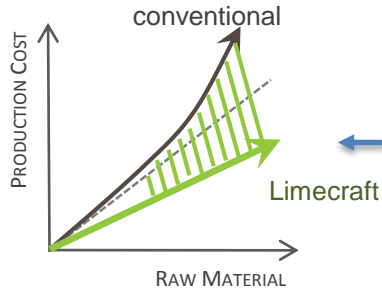
- Manual transcription and “annotation”
- Unstructured ”meta” information
- Limited collaboration potential

Traditional methods don't scale

- Increasing volumes of raw material
- Increasing post-production cost
- Several output versions versions



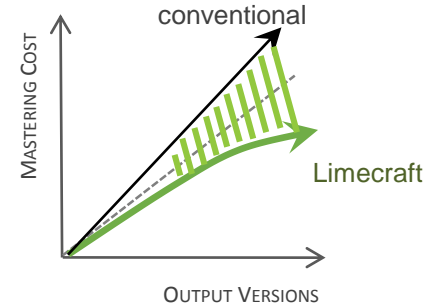
How Limecraft Flow addresses today's Production Challenges



Conventional video production involves a lot of manual work, copy-and-paste, excessive file transfers. This is hard to scale.

Due to digitization, there's a trend

- to process more material on the input side,
- to create more versions on the output side



Production

Post-Production

Mastering

Limecraft Flow : workflows to automate manual work and increase productivity

- ➔ Dailies: process more material in less time
- ➔ Output: create different versions at marginal cost



Eclair operations



In: 12 collections

CUSTOMERS

- > [10212] EDITIONS MONTPARNASSE
- > [10532] RTBF
- > [12511] ARTE FRANCE
- ✓ [14143] KOBA FILMS
 - o [2082384] POLDARK
 - o [2095048] HARVIE ET LE MUSÉE MAGIQUE
 - o [2095077] UNE BELLE FAMILLE
 - o [2095071] LA LÉGENDE DU ROI SALOMON
 - o [2095072] HAPPY BIRTHDAY
 - o [2095073] PATRICK MELROSE S01
 - o [2095139] THE ENDLESS
 - o [2091497] 2 JOURS AVEC PAPA
 - o [2089575] ABULELE
 - o [2089949] HIGH SCHOOL GIRLS
 - o [2093078] THE LITTLE MERMAID
 - o [2090016] MAX GÉNIE MALGRÉ LUI
- > [14183] GAUMONT DEPARTEMENT INTERNATIONNAL
- > [15000] MK2 FILMS
- > [15211] GAUMONT VIDEO
- > [16337] BLAQ OUT
- > [16350] USHUAÏA TV
- > [16966] TELECIP PRODUCTIONS
- > [1773] MGM STUDIOS INC
- > [20212] GROUPE CANAL +
- > [2023] DEPARTEMENT VIDEO

search

119 results



EXPORT SEARCH RESULTS

VIEW

Export

Open in Collection Builder

Go To Subclips

Show Clip Details

HappyBirthday_TRAILE...

00:02:07:10 06/06/2019 E

HappyBirthday_FEATU...

01:34:29:08 04/06/2019 C

HappyBirthday_TRAILE...

00:01:50:19 06/06/2019

just film DISTRIBUTION

MDC_KOB_MAXGENIE...

01:15:01:01 29/05/2019

metadata

artwork

Limecraft Flow

- Online platform for collaborative production
- Automatic logging, indexing, rough-cut, subtitling,...
- Built-in access to several AI engines for transcription, facial recognition, detection of violence, nudity, etc...

Key Benefits

- Avoids file-transfers
- Automatic transcoding and
- Single secure repository to connect different sites
- Easier search and re-use
- Automatic mastering : DCP processing, subtitling,...

A man in a dark suit stands with his back to the camera, arms outstretched, facing a large, curved blue screen. The screen displays a world map with a grid of latitude and longitude lines. The scene is lit with a cool blue light, creating a futuristic or technological atmosphere.

How can we take advantage of Artificial Intelligence (AI)?

- Which data?
- How to handle inaccuracy?
- What's the benefit for production?

Example: 'Un si grand soleil' by France Télévisions

Format

- Daily soap
- Shot in Montpellier, cut in Paris
- 3 studios, Multi-cam, VFX on set

Challenges

- 8 files per “shot”, up to 1000 files per day
- High post-production rythm: 1 episode per day
- Deliver the master data to enable interactive output

Solution

- Integrate script and breakdown
- Automated transfer back and forth Avid Interplay, grading, VFX, Sound
- Delivers timed subtitles and master data without manual post processing



001. Edge

Limecraft “Edge” – Dailies Processing

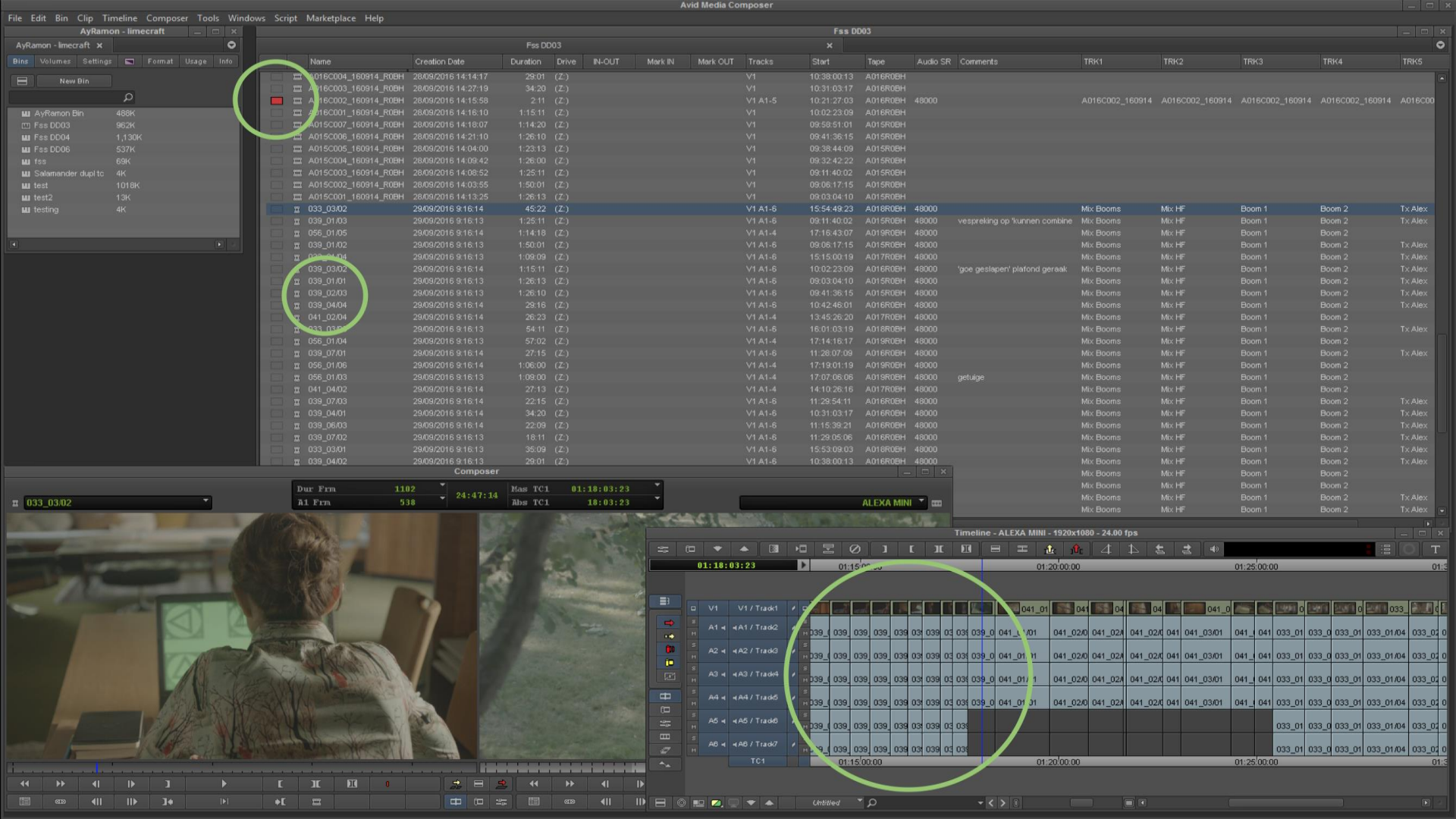
- Backup to one or more copies
- Raccord
- Audio sync and colour templates
- Transfer to edit
- Deposit in archive

Key benefits

- Secure your material on the day of the shoot
- Dailies are available for review in minutes

The screenshot displays the Limecraft Edge software interface. At the top, it shows the project name 'FRANCETV - UN SI GRAN...' and the episode 'EP_126_135'. The interface includes a video player showing a scene with a person holding a sign that says 'CAMPESINOS LA LEY ES PARA LOS POBRES'. Below the video player is a table of media items with columns for NAME, START, DURATION, CAMERA, CRC, AUDIO SCE., AUDIO TAKE, VFX TYPE, and NEEDSLIT. The table contains several rows of data, including items with names like '16-03 /1 /1', 'BC_2018-06-04_1.1', and 'A_2018-06-04_1.3'. On the right side, there is a 'CLIP METADATA' panel with fields for Name, Base Name, Description, Added, Path, Media Start, Media End, Media Duration, VFX Type, Frame Rate, Resolution, Size, File Type / Codec, Camera, and Tracks.

NAME	START	DURATION	CAMERA	CRC	AUDIO SCE.	AUDIO TAKE	VFX TYPE	NEEDSLIT
16-03 /1 /1	8:55:13	01:42			16-03 /1	11		
BC_2018-06-04_1.1	8:55:18	01:37	BC				POS	
BC_2018-06-04_1.2	8:55:18	01:37	BC				PEL	
C006C001_180604_J70K	8:55:19	01:36	C					true
A_2018-06-04_1.3	8:55:20	01:37	A				ALP	
A_2018-06-04_1.1	8:55:20	01:37	A				POS	
A_2018-06-04_1.2	8:55:20	01:37	A				PEL	
A006C001_180604_J70J	8:55:20	01:34	A					true
BC_2018-06-04_3.1	9:00:37	00:02	BC				POS	
BC_2018-06-04_3.2	9:00:37	00:02	BC				PEL	



EP_186_195

ALL FILES

NOT IN COLLECTION

COLLECTIONS

- TOURNAGE_DU_20190304_SEQ_166-16_SEQ167-9
- TOURNAGE_DU_20190304
- TOURNAGE_DU_20190305
- TOURNAGE_DU_20190306
- TOURNAGE_DU_20190307
- TOURNAGE_DU_20190308
- TOURNAGE_DU_20190311
- TOURNAGE_DU_20190312
- TOURNAGE_DU_20190313
- TOURNAGE_DU_20190314
- TOURNAGE_DU_20190315

SCREENPLAYS

STORIES


In: library

search 3697 results EXPORT SEARCH RESULTS VIEW

EPISODE 162

SCENE 162.15 | 2 takes in 1 shot

SHOT 162.15.3 | 2 takes

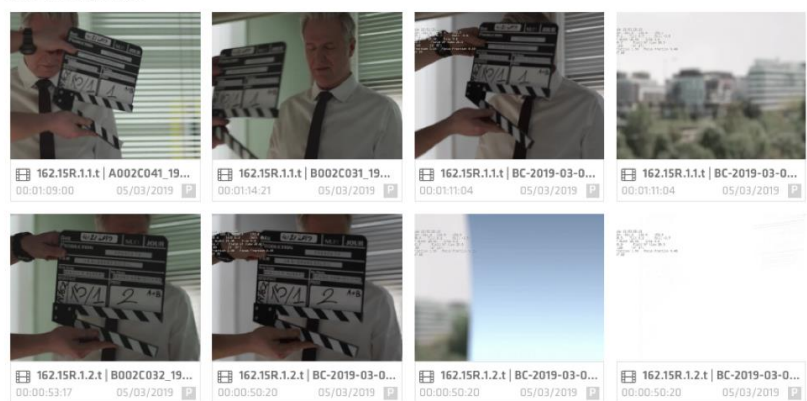


162.15.3.1.t | A002C045_19... 00:00:48:18 05/03/2019

162.15.3.2.t | A002C046_19... 00:01:16:15 05/03/2019

SCENE 162.15R | 20 takes in 2 shots

SHOT 162.15R.1 | 10 takes



162.15R.1.1.t | A002C041_19... 00:01:09:00 05/03/2019

162.15R.1.1.t | B002C031_19... 00:01:14:21 05/03/2019

162.15R.1.1.t | BC-2019-03-0... 00:01:11:04 05/03/2019

162.15R.1.1.t | BC-2019-03-0... 00:01:11:04 05/03/2019

162.15R.1.1.t | BC-2019-03-0... 00:01:11:04 05/03/2019

162.15R.1.2.t | A002C042_19... 00:00:54:54 05/03/2019

162.15R.1.2.t | B002C032_19... 00:00:53:17 05/03/2019

162.15R.1.2.t | BC-2019-03-0... 00:00:50:20 05/03/2019

162.15R.1.2.t | BC-2019-03-0... 00:00:50:20 05/03/2019

162.15R.1.2.t | BC-2019-03-0... 00:00:50:20 05/03/2019

162.15R.1.2.t | BC-2019-03-0... 00:00:50:20 05/03/2019

Limecraft automatically processes dailies overnight. Using AI, shots are automatically cut into scenes.

Key Benefits

- 1000 files per day automatically tagged
- Faster access for review and pre-cut
- Reduction of the turn around time from 12 to 3 months

AUTOMATIC TRANSCRIPTION

My material is in

- ✓ Afrikaans (South Africa)
- Amharic (Ethiopia)
- Arabic (Algeria)
- Arabic (Bahrain)
- Arabic (Egypt)
- Arabic (Iraq)
- Arabic (Israel)
- Arabic (Jordan)
- Arabic (Kuwait)
- Arabic (Lebanon)
- Arabic (Morocco)
- Arabic (Oman)
- Arabic (Qatar)
- Arabic (Saudi Arabia)
- Arabic (State of Palestine)
- Arabic (Tunisia)
- Arabic (United Arab Emirates)
- Armenian (Armenia)
- Azerbaijani (Azerbaijan)
- Basque (Spain)
- Bengali (Bangladesh)
- Bengali (India)
- Bulgarian (Bulgaria)
- Catalan (Spain)
- Chinese, Cantonese (Traditional, Hong Kong)
- Chinese, Mandarin (Simplified, China)
- Chinese, Mandarin (Simplified, Hong Kong)
- Chinese, Mandarin (Traditional, Taiwan)
- Croatian (Croatia)
- Czech (Czech Republic)
- Danish (Denmark)
- Dutch (Netherlands)
- English (Australia)
- English (Canada)
- English (Ghana)

ASR automatically turns audio into timed text in 122 languages.

Using complementary NLP and NER, we can automatically tag and categorise content fragments.

Use Cases

- Computer Assisted Logging
- Auto-tagging
- Ease of searching
- Text-based pre-cut (paper-edit)



EXPORT COMPLETED X

Music 00:00:01:05
(music)

Alex Honnold 00:00:07:10
I'm Alex Honnold, and I think Royal Robbins is the man.

Yvon Chouinard 00:00:12:12
We used to call him the Icy Commander

Conrad 00:00:18:22
All of us who are in the sport today that make their living from it. We have a sense of gratitude to Royal for showing us the way.

Yvon Chouinard 00:00:30:17
My name is Yvon Chouinard. I'm the founder of Patagonia. I met Royal at Stony Point in the San Fernando Valley, where we kind off all learned to climb. We were lucky to be part of the golden age of Yosemite climbing. In 1964, Royal asked me to come along on the first ascent of the North American wall, El Capitan. You know, I had always told my parents that I was a climber, but they didn't know what that meant. Then one day looking at television on the nightly news, there was a helicopter going by the North American wall, and El Cap, and they zoom in on these crazy guys hanging from hammocks. My parents just about fell off the sofa. First time in their lives, they realise what climbing really meant.

When we did it was really the most ?? rock-climb that had been seen anywhere. It was his idea to do that climb and he was definitely the leader.

Alex Honnold 00:01:40:17
I'm Alex Honnold, I'm a professional climber and I think Royal Robbins is the man.

I think Royal's legacy probably is clear climbing for his contribution to the clean climbing ethic where the challenge was more internal, in like, it's about the gear, less about, overcoming the mountain and more about, overcoming yourself and being able to challenge yourself on the inside. I'd heard from his family and some of his friends that he thought highly of muscle and stuff. And I can see why, because he sort of in the same spirit as, as what he was doing. It's pretty exciting to think that Royal Robin's, even like knows who I am, slash, like has an opinion on my climbing. It's pretty cool.

Voice-Over 00:02:40:24
Some ?? choose a life in i.t. or event planning. Conrad Anker has opted to swing from a nylon steeladder 19,000 feet up a cliff. It may seem an odd way to spend one's life, but it's his

EXPORT MARK COMPLETE X

Q search 3 results

6/5/2018, 10:32:40 AM 23.6s dieter

00:00:30:17 00:00:59:17

“ My name is Yvon Chouinard. I'm the founder of Patagonia. I met Royal at Stony Point in the San Fernando Valley, where we kind off all learned to climb. We were lucky to be part of the golden age of Yosemite climbing. In 1964, Royal asked me to come along on the first ascent of the North American wall, El Capitan. You know, I had always told my parents that I was a climber, but they didn't know what that meant.

– Yvon Chouinard

#interesting_quote

1/14/2018, 4:54:20 PM 29s dieter

00:03:27:22 00:03:35:15

“ I mean Royal was a classic American boy, there is no doubt about it. It's kind of, kind of a square. Yeah, he'd marry early and he had a wife.

– Yvon Chouinard

more quotes.

6/5/2018, 10:50:22 AM 7.7s dieter

+ Add Subclip

Centralized and structured transcription and logging of material

-> Faster cataloguing, better search and retrieval, more efficient offline edit

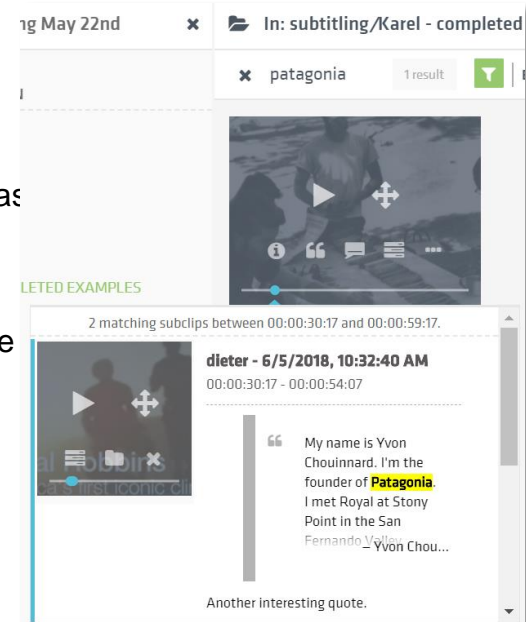
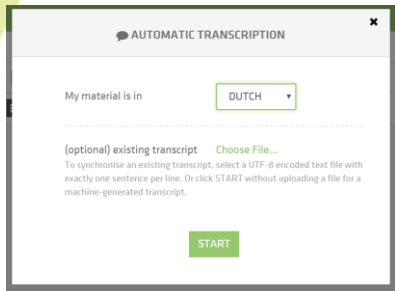
- Supervised or unsupervised Machine transcription (ASR) and Named Entity Recognition

- Enable Search and Selection

- Feed the search index
- Add specific parts or subclips to the order or shopping basket

- Hand-over to Edit Workstation or Archive

- Compatible with Avid MC, Avid Interplay, Adobe Premiere
- Timed tekst, Named Entities, Faces





Automatic creation of subtitles

- Machine transcription
- Spotting rules
- Delivered in a variety of formats, including **EBU-TT-D**, SRT, STL, etc.



Key benefits

- 50% cost saving compared to manual subtitling
- Producers and distributors can create subtitles themselves
- Retain the rights of the subtitles



Creating subtitles is a bit of A.I. of itself

- Subtitles must be aligned along the shot cuts
- Using NLP to detect clusters of words that are preferably not split
- Various timing rules make up a complex algorithm
 - Best score wins, but might violate some constraints

WORKFLOWS

✓ Ingest

- Detect Type 03s
- Transcode to mp4 (SD) 02m09s
- Analyze media 01s
- Extract features 06m01s
- Analyzing audio waveform 0s
- Transcode to mp4 (720p) 03m55s

✓ Automatic Transcription

- Transcode 04s
- Automatic transcription 01m26s
- Generate Subtitles 48s

✓ Subtitles From Transcript

- Generate Subtitles 53s

Automatic Subtitled Spotting Rules

Tweak the behaviour of the automatic subtitler.

- A subtitle line preferably contains at most 37 characters, with a hard limit of 40 characters
- A subtitle preferably contains at most 2 lines, with a hard limit of 3 lines
- Keep the word rate below 180 words per minute
- When the gap between consecutive subtitles is less than 2 seconds, the first subtitle will be shown until the start of the next subtitle
- Snap the subtitle appearance timing to the shot change if it is closer than 0,5 seconds
- Fade out for 0,5 seconds after the last spoken word in the subtitle
- A subtitle preferably is between 2 and 5 seconds
- Prevent splitting these words from the next word (one word per line)

```
a
the
to
and
be
```



00:00:04:15

EXPORT



EXPORT



S0

00:00:00:02

Even if you feel like this is an area. That's a mystifying **just** by getting more knowledgeable. You can totally teach yourself how to be better than mine.

S10

00:00:19:20

My friends have money is definitely a case of what not to do I would receive text messages from my bank. Tiny. You're gonna bump painful. The buggery. You don't have a bank balance, Sarah. Number One take

S0

00:00:39:24

when I first started writing about this. You have to get a spreadsheet writers, although it's so much easier than it used to be dangling really smart at. There's actually no excuses for not knowing what's coming.

S10

00:00:56:09

It's really important for women everywhere to have a safety net. That means that you don't ever find yourself in a situation. You can't get out of whether it's a bad relationship when it's a job that you really don't like

S0

00:01:08:05

called it. The freedom fund and even if you are fiver a week, use in future. You see fit. It'll savings, but there's a real kind of emotional barn.

S14

00:01:22:24

We've all got busy lives often. It can be something that we can forget about it just like you know. Tidying your house every Saturday or something. Spend some time on managing your money. Sure. At your bank account and your mortgage could you be getting a better offer somewhere else. Are they put it right for you.

S10

00:01:43:03

We live in a culture where we are told we need. Sorry, many games, things Ruskin's thinking, Frank. It is. It's just not true make a list of what you really, really want and you'll see that a lot of stuff and spending money on is just not necessary.



Create subtitles

Do you want to use automatic transcription and subtitling to initialize your subtitles?

It takes about 1h for 1h of material. Afterwards, you can edit the subtitles manually.

Have a transcript text available? Choose this option and we'll time-sync it to your material

START AUTOMATIC SUBTITLING

OR

Skip the automatic subtitling and start writing subtitles from scratch

SKIP



00:00:04:15

EXPORT

EXPORT

S0 00:00:00:02

Even if you feel like this is an area. That's a mystifying just by getting more knowledgeable. You can totally teach yourself how to be better than mine.

S10 00:00:19:20

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S0 00:00:39:24

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S10

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The subtitle has the following problems

- The word rate is 316 words per minute. Show the subtitle longer on screen or make the text shorter to get the word rate below 180.

S0 00:01:08:05

called it. The freedom fund and even if you are fiver a week, use in future. You see fit. It'll savings, but there's a real kind of emotional barn.

S14 00:01:22:24

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00:00:00:02 00:00:04:15

Even if you feel like this is an area that's mystifying,

00:00:04:15 00:00:07:22

just by getting more knowledgeable, you can totally

00:00:07:22 00:00:11:23

teach yourself how to be better than money.

00:00:19:17 00:00:23:10

My experience with money is definitely a case of what not to do. I would

00:00:23:10 00:00:29:06

receive text messages from my bank, telling me

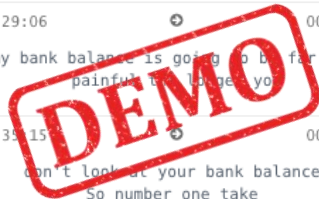
00:00:29:06 00:00:32:09

my bank balance is going to be far more painful to manage yo

00:00:33:15 00:00:36:10

can't look at your bank balance, So number one take

00:00:36:10 00:00:36:12



Localisation is a different ball game

- Using Machine translation (not Automatic Speech Recognition)
- Not intended for the hard of hearing
- Maintain consistent timing

Using Machine Translation

- Translating existing subtitles (the “Template”)
- Adding non-domestic subtitles at marginal cost
- Enabling producers and distributors to extend their reach



Co-funded by the
Creative Europe Programme
of the European Union

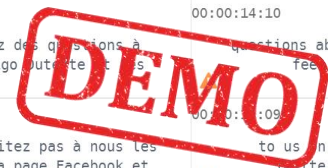


extremist policy and yet he is very, very popular.

00:00:07:19

TRANSLATED FROM: fr LANGUAGE: en

	EXPORT	✓ MARK COMPLETE	
00:00:00:22	Bonjour ce soir dans Décryptage je vous emmène aux Philippines	00:00:03:19	Hello tonight in Decryption I take you to the Philippines to learn
00:00:03:19	pour mieux connaître la méthode Duterte. Le président philippin a	00:00:07:19	more about the Duterte method. The Philippine president has a rather
00:00:07:19	une politique assez extrémiste et pourtant il est très, très populaire.	00:00:11:01	extremist policy and yet he is very, very popular.
00:00:11:01	Donc notre invité va nous aider à comprendre pourquoi. Et si vous	00:00:14:10	So our guest will help us understand wh And if you have any
00:00:14:10	aussi vous avez des questions à poser sur Rodrigo Duterte et s	00:00:18:09	questions about Rodrigo Duterte and his fee free to submit them
00:00:18:09	méthodes, n' hésitez pas à nous les soumettre sur la page Facebook et	00:00:21:14	to us in the show's Facebook and twitter page. We choose some
00:00:21:14	Twitter de l' émission. On en choisit quelques-unes, on les pose à notre	00:00:24:21	of them, we ask them to our guest. So it's at 7:10



00:01 00:02 00:03 00:04 00:05 00:06 00:07 00:08 00:09 00:10 00:11 00:12 00:13 00:14 00:15 00:16

Hello tonight in Decryption I take you to t... more about the Duterte method. The Philippine president ... extremist policy and yet he is very, very popular. So our guest will help us understand why. And i... questions about Rodrigo Du

Bonjour ce soir dans Décryptage je vous e... pour mieux connaître la méthode Duterte. Le président phil... une politique assez extrémiste et pourtant il est ... Donc notre invité va nous aider à comprendre p... aussi vous avez des questio

Summary

- **Limecraft Flow**
 - Asset Management and workflow automation
 - Specific solutions for fiction, non-scripted
 - Dedicated workflows for subtitling (same language) and localisation (language-to-language)
- **Same language subtitling (closed captioning)**
 - Using speech recognition for automatic transcription (saving min. 50%)
 - Automatic spotting (saving 100%)
- **Localisation**
 - Uses Machine translation (saving 80%)
 - Add subtitles in other languages at marginal cost

Free trial available, we appreciate your feedback!

- <https://platform.limecraft.com/#auth/signup>

Questions?

- Email: maarten.verwaest@limecraft.com
nuria.sanchez@limecraft.com
- Stay in touch: <https://facebook.com/Limecraft.Connected>
<https://twitter.com/Limecraft>

